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A History of Massage Technic — BEARD

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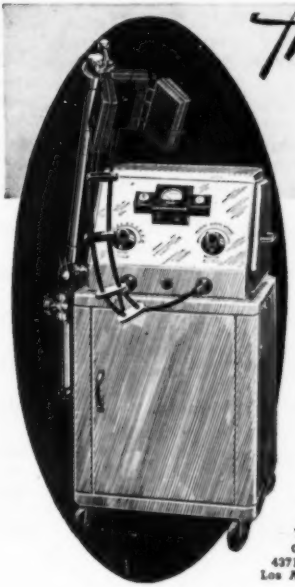

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The Physical Therapy Review

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A History of Massage Technic

Gertrude Beard

PART I. DEFINITION, TERMINOLOGY, AND DESCRIPTION OF MOVEMENTS.

The use of massage as a form of treatment has been mentioned in medical history from the earliest records and continues down through many eras. Writings of physicians, philosophers, poets, and historians show that some form of rubbing or anointing was used among both savage and civilized nations from the most ancient times.

In much of the medical history which has been written, massage and exercises are referred to simultaneously, and in the very early literature there is little distinction between the two. Kleen (1847-1923) of Sweden, who published a handbook of massage in 1895 and a later edition in 1917, claims to be the first to clearly define that massage is not an exercise therapy.

In reviewing the literature on massage one is impressed with the lack of detailed description of massage. Even in some rather recent research there is little information on the actual technic of the massage which was used. When one observes the great variance in the massage technic which is used today and the frequent apparent lack of scientific basis for the movements which are given, one wonders how any conclusions can be made as to its value or lack of value in treatment. This lack of detailed information and the confusion in the meaning of the current modern terms has led this author to make a study of the literature in the technics of massage. A complete account of the history of massage is not attempted; only the technics are considered and a comparison of the methods is made to determine, if possible, their influence upon the development of present day methods. Much of the information on the early history of massage as presented in this study has been obtained from the publications of Graham, Bucholz, Coulter, and others. The study has been comprehensive, but a complete survey of the literature has not been attempted.

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DEFINITION

The early medical literature is devoid of any comprehensive definition of massage. Therefore, in beginning this study one finds himself in the anomalous position of discussing a subject for which there seems to be no adequate definition. At least there is none in printed form, even in the more recent literature, which satisfactorily covers the matter. A medical dictionary of 1886 offers this: "A process of treatment by rubbing which consists of deep manipulations." It gives as synonymous terms, "shampooing, kneading, and medical rubbing."

Murrell (1853-1912) of Edinburgh and London, about the same time, was at once less general and more specific when he defined massage as "the scientific mode of treating cer-

tain forms of a disease by systematic manipulations." You will note, he limited its use to the amelioration of disease, but was evidently realizing the need for a system in its use. He placed no limit on means of massage. At the same time Graham (1848-1928) of Boston, in his writings from 1884 to 1918 says: "A term now generally accepted by European and American physicians to signify a group of procedures which are usually done with the hands, such as friction, kneading, manipulations, rolling, and percussion of the external tissues of the body in a variety of ways, either with a curative, palliative or hygienic object in view." He goes much further than Murrell (in recognizing that there is a term needing a definition) and limits the means to the hand, the surfaces involved to the external tissues, and the objective as being curative, palliative or hygienic.

Kleen, contemporary with Graham's early works, limits the areas involved to the soft tissues, but to the hand as a means, he adds apparatus. This seems inconsistent since he eliminated the idea that massage is exercise. In this he differs from his early compatriot, Ling (1774-1839) of Sweden.

Hoffa (1859-1907) of Germany, joins those who limit the means to the hand, but is more embracing in its field of use. He applies it to all the "mechanical procedures that can cure illness."

At about the same time another German, Zabludowski (1851-1906), also limited the means to the hand, but specified "skillful hand grasps, skillfully and systematically applied to the body." While limiting the movement to skillful hand grasps he, like Murrell, recognized the use of systems.

Bucholz (1874—) of Boston and Germany, is as indefinite as any of his early predecessors. He does not mention the hand or any other means in his recommended manipulation of the soft tissues for therapeutic purposes.

Even Mennell (1880—) whose great contributions have made the science of massage what it is today—even he gives no formal definition.

Since no definition which can be considered adequate for massage as it is used today for therapeutic purposes can be found in even the recent literature on this subject, this author presents the following definition which seems to be comprehensive and expresses the manner and purpose of this form of treatment: Massage is the term used to designate certain manipulations of the soft tissues of the body which are most effectively performed with the hands and are administered for the purpose of producing effects on the nervous and muscular systems, and the local and general circulation of the blood and lymph.

TERMINOLOGY

A student of the literature must be impressed with the number of different terms used for movements of massage in the passing years. Although there is a similarity, there is considerable confusion and a comparison will reveal that few gave the same meanings to these terms. A survey of these differences seems necessary if one is to be able to interpret correctly any reading of earlier massage technics and at the same time be possessed of a clear idea of the meanings presently accepted.

There is a similarity in the terms used by the various advocates of massage among the ancient Greeks and Romans from the time of Homer and through the fourth and fifth centuries A.D. "Friction," "rubbing," and "anointing" were used most frequently by these writers. Celsus (25 B.C.-50 A.D.) of Rome, used also the term "unction." "Anitripsis" and "rubbing" were the terms used by Hippocrates (450-380 B.C.) of Greece, and later Galen (131-200 A.D.) of Rome, adopted the term anatripsis from Hippocrates but added the terms "tripsis," "tripsisparaskeulasthke," and "apotherapeia." Oribasius (325-403 A.D.), a Roman who followed Galen a century later, described apotherapeia as "bathing," "friction," and "inunction." Other terms used in this period were "pommeling," "squeezing," and "pinching."

There is little literature on medical history during the Dark Ages but we find the terminology of the earlier period is carried over by the users of massage during the fifteenth, sixteenth, and seventeenth centuries in many of the European countries. Among these writers were the noted surgeon, Paré (1517-1590) of France, and the famous physician, Sydenham (1624-1689) of England. They confined the terminology to "friction." Alpinus (1553-1617) of Italy, used "rubbing" but added "maxalation," "manipulation," and "pressure"; and Hoffman (1660-1741) of Prussia, adopted Galen's term apotherapia. Fabricus of Aquapedente (1537-1619), an Italian, seems to be the first to use the term "kneading" and he also used "rubbing."

In the early part of the nineteenth century

we see a definite change in terminology, evidently due to the influence of Peter Ling of Sweden, in the beginning of the use of French terms. Ling, to whom credit has been given as the originator of the Swedish system of massage traveled widely over all Europe and incorporated the use of the French terms, effleurage, petrissage, massage à friction, and tapotement into his system. To these he added rolling, slapping, pinching, shaking, vibration, and joint movement, a specific example of including a part of present day exercise in the classification of massage movements. Mezger (1839-1900) of Holland, used the French terminology exclusively, and Beveridge (1774-1839) of Scotland, seems to be original in his use of the term "finger rubbing." Lucas-Championnière (1843-1913) of France, was also unique in his terminology; his gentle massage, which he termed "glucokinesis" and "effrayante," has greatly influenced the massage technic of present times.

The terms used by the Islanders of Tonga in this same period were "Toogi-Toogi," "Mili," and "Fota"; while the Hawaiians used "Loomi-Loomi."

In the early twentieth century we find medical men in the United States contributing to the literature of massage. Graham avoids the French terms and lists "friction, kneading, manipulation, rolling pinching, percussion, movement, pressure, squeezing" and the very early Italian term "maxalation." Kellogg (1852-1943) of Battle Creek, describes 37 different movements as contrasted to some of the English writers of a century earlier, for example Grosvenor (1742-1823) who uses only "friction." Murrell, Kleen, Hoffa, Bucholz, and Mitchell (1859-1917) of Philadelphia, cling to the French terminology, while Zabludowski and Mennell drop it almost entirely.

Kleen, Zabludowski, Mitchell, Bucholz, and Mennell give a rather simple general classification of the terminology with subdivisions of the movements. Mennell's general classification is stroking, compression and percussion. There is much confusion in the contemporary terminology. An example is Despard's continued use of a mixture of French and English terms.

It is difficult to trace any specific development of the terminology of massage as it is used today. Ling had an influence by his introduction of the French terms, and although there is a trend by modern authors to discontinue their use, they do exist in current literature.

In Mennell's classification the terms are descriptive of the actual movements as they are performed and therefore have a logical basis for their use. We have used the following simple classification: Stroking, which is subdivided into superficial and deep; Compression, which includes kneading and friction; and Percussion, which may be divided into hacking, clapping, tapping, and beating. This is a slight modification of Mennell's terminology and when the terms are adequately defined they will embrace all massage movements as they are applied to the various parts of the body.

DESCRIPTION OF MASSAGE MOVEMENTS

In order to interpret the meaning of the terms used by the various authors it is necessary to analyze the following aspects of the technic: direction of the movement, amount of pressure applied, the part of the hand used in performing the movement, the actual motion which is performed and the specific tissues of the body to which it is applied.

There is very little description of the massage movements in the very early literature; in keeping with the education of that day, no doubt massage was taught by the apprentice method. We have limited the analysis of the description of the movements to the available information since the time of Ling and the terms to those most commonly used today, namely: petrissage, kneading, friction, effleurage, and stroking. Tapotement, vibration, and shaking have changed very little in meaning; therefore, they will not be included.

Petrissage

To perform petrissage we find that Ling grasped the tissues between the thumb and fingers while Mitchell, Kellogg, Bucholz, and Mennell advised that the palm be used chiefly in the contact with the tissues. Hoffa and Mennell emphasized that the hand must fit the contour of the tissues. Hoffa specified different types of petrissage depending upon the parts of one or both hands which were used in performing the movement. The authors also differ in opinion as to whether one or both hands are used.

According to Ling and Murrell the motion is a rolling one, the skin under the fingers moving with them, but Hoffa, Mitchell, Kellogg, Despard, Bucholz, and Mennell lift the mass of

tissues and make a squeezing movement. In addition to the rolling Murrell adds that the tissues are pressed and squeezed as one would squeeze out a sausage. Bucholz and Mennell advocate that the hand glide over the skin instead of the skin moving with the hand. Despard and Mennell alternately compress the tissues between the thumb of one hand and the fingers of the other; Mezger lifts the tissues and "kneads" them between the hands. In addition to lifting the tissues for petrissage, Despard describes also a petrissage in which the tissues are grasped and pressed down on the underlying structures and at the same time squeezed.

Murrell and Hoffa state the pressure is firm, Ling that it varies, and Mennell that it should be gentle. Mitchell and Despard alternately tighten and loosen the pressure. Kellogg states it must not be so great as to prevent deeper parts from gliding over still deeper structures.

Many authors mention that petrissage is applied to muscle groups, individual muscles or some part of a muscle. Ling mentions specifically that the skin, subcutaneous tissues, and muscles are grasped, while Mitchell is not specific; he mentions only "tissues," and Murrell says a portion of muscle or other tissue.

The direction is stated as centripetal by most authors; Hoffa and Mennell make compression transversely to the muscle fibers although the general movement is centripetal, and Bucholz states that the succession of single manipulations may be either centripetal or centrifugal.

Kneading

Only the most recent authors use kneading as a separate type of movement; the earlier ones use the French term petrissage to describe the movement which is very similar in many respects to the kneading described by the more recent users of massage.

Several authors describe petrissage as a kneading movement and make little differentiation between the two; other descriptions of kneading are very similar to those for petrissage. Mennell states that they very closely resemble each other, the only difference being that petrissage is a picking up movement with a lateral compression while in kneading the compression is vertical. Kellogg's concept is opposite to that of Mennell; he states that the tissues are lifted in kneading and not in petrissage. Graham states that in kneading the fingers and hand slip on the skin, while Kellogg states definitely that the surface of the hand must not be allowed to slip along the surface of the skin.

Graham uses kneading on the tissues beneath the skin, while Kellogg subdivided kneading, using "superficial" for skin and loose cellular underlying tissues, and "deep" for muscles. Graham and Kellogg disagree also on direction, Graham stating that it should be with the return circulation and Kellogg that in "superficial" the relation to the veins is not important. Mennell gives the direction as centripetal, beginning at the proximal portion of an area and advancing to the more distal, the motion being circular with the hands working in opposite directions. He states the pressure is gentle, with alternating waves of compression and relaxation applied to a series of points with the greatest pressure when the hand is engaged with the lowest part of the circle and least when at the opposite pole. The entire palmar surface of the hand is in contact.

Friction

From their descriptions of friction, there seems to be great confusion of concepts among the users of this form of massage. Kleen and Mennell differ from the other authors and use the plural "frictions," although they do not agree on pressure; Kleen states the pressure is quite hard and Mennell says it should be light, slowly progressing to deep, depending on the conditions present. Hoffa states the pressure seeks to penetrate deeply, Mitchell and Kellogg that it is moderate.

Grosvenor and Graham state it is given with long strokes, while most of the other authors state it is done with a small circular motion, the direction being circular, and Graham says the direction is circular or rectilinear, which may be parallel with or horizontal to the long axis of the limb. Kellogg states that the direction is from below upward, following the large veins and the motion is centripetal, centrifugal, circular, or spiral rotary. Kellogg states and evidently Grosvenor and Graham agree that the hands should slip over the skin, and these authors use the entire palm of the hand. Hoffa, Bucholz, Despard, and Mennell state the movement is done with the ball of the thumb or fingers which keep contact with the skin and move it over the underlying tissues. Following Ling we find several authors using the French term "massage à friction" which movement is no doubt similar to the contemporary "friction"

or "frictions." Despard clings to the use of this term.

There is great variance in the tissues to which this movement is applied. Kleen, Mitchell, and Mennell use it on small areas, while Graham says each stroke extends from joint to joint. There seem to be two very distinct concepts in regard to this movement, one that the friction occurs between the hand and the skin surface; the other, and that which seems more acceptable at the present, that the part of the hand used is kept in contact with the skin and the superficial tissues moved over the deeper underlying ones.

Stroking and Effleurage

The description of these movements is so similar that they may be discussed together. Here we see again, as in kneading and petrissage, the continued use of the French and English terms which are almost interchangeable. Mennell does not include the term effleurage in his classification of massage movements.

Authors, with the exception of Mennell and Ke'logg, agree that the direction is centripetal. They both use the term stroking and Kellogg states that the direction is "with the blood current in the arteries"; however, he does not mention the amount of pressure. Mennell divides stroking into superficial and deep; the superficial may be either centripetal or centrifugal, but the pressure, while firm, must be only the lightest touch possible to maintain contact. Deep stroking is in the direction of the venous and lymph flow.

Despard uses both terms stroking and effleurage; the direction in both is centripetal but the pressure in stroking is "vigorous," while in effleurage it should vary according to the condition of the patient. Other factors in the movements are very similar and she describes the motion of effleurage as "stroking." Ling, Mezger, Kleen, and Mitchell also describe the movement of effleurage as stroking.

Ling says the pressure in effleurage varies from the lightest touch to "one of considerable force." Murrell and Kleen say that it varies, while Hoffa and Bucholz use light pressure at the beginning of the stroke, increase over the fleshy part of the muscle, and decrease again at the end. Mitchell varies the pressure according to the region being treated and uses heavy pressure on the upward stroke, keeps the hand in contact to return, but with much less pressure. Bucholz also keeps the hand in contact for a return stroke, very lightly touching the skin.

Most authors agree that stroking and effleurage are to be given over large areas; Mennell emphasizes that the muscles must be relaxed and Hoffa and Bucholz that the movement should follow the anatomical outlines of the muscles.

Nearly all authors use the palm of the hand for effleurage and stroking. In addition to the palm some authors use the heel of the hand, its edge, the tips of the fingers, the ball of the thumb, and the "knuckles" for effleurage and stroking. Hoffa, Bucholz, Despard, and Mennell recommend that the palm should be in good contact and conform to the area being treated.

Because of the confusion in the interpretation of similar terminology even among recent authors it is difficult to interpret prescriptions and literature and to evaluate any research in which massage has been used. To avoid this confusion we present the following comprehensive definitions of the terms used in the aforementioned simple classification:

(1) Stroking consists of the passage of the hands or parts thereof, over a comparatively extended area of the body; constant pressure is maintained more or less throughout the stroke. Any degree of pressure may be applied varying from the lightest possible touch to deep pressure. A superficial stroke is performed with extremely light pressure in either direction (centripetal or centrifugal) using the entire palmar surface of one or both hands. Deep stroking is performed with the palmar surface of one or both hands or parts thereof; the part used is kept in firm contact throughout the stroke and must fit the contour of the area, the pressure is constant throughout the stroke, and it is given in the direction of the flow of venous blood and lymph.

(2) Compression consists of grasping and releasing the tissues with one or both hands, or parts thereof, in a lifting, rolling, or pressing movement. The outstanding characteristic of this movement as contrasted to stroking is that the pressure is intermittent. A kneading movement consists of grasping or compressing a muscle group, a muscle or part of a muscle; applying pressure, then releasing the pressure and progressing to an adjacent area, and re-

peating the process. In friction the part of the hand which is used is kept in firm contact with the skin, and the skin and superficial tissues are moved in a circular or transverse direction over the underlying tissues with firm pressure. The pressure is released as the part of the hand in contact passes over the skin to an adjacent area and the movement repeated.

(3) Percussion movements are a series of blows rapidly administered, usually with both hands alternating, in a springing motion. These movements are subdivided according to the part of the hand which makes contact.

If some such inclusive description of massage terminology became uniform among American users of massage, much of the present confusion could be avoided. Otherwise, it becomes necessary for all authors to specifically describe the meaning of the terms which they use.

PART II. COMPONENTS OF MASSAGE TECHNIC.

The factors which must be considered as components in the application of massage technics are: the direction of the movement, the amount of pressure, the rate and rhythm of the movements, the medium used, the frequency and duration of the treatment, the position of the patient and of the physical therapist.

Direction

Until the time of Hippocrates, the literature shows that the direction of massage was centrifugal. The contribution of Hippocrates to medicine is outstanding and he showed unusual genius in the use of massage as well as other methods of medical treatment. He advocated the centripetal direction for massage movements. He was unusual in his emphasis on clinical observation, and we can assume that his choice of direction was made from his clinical observations of the effect of the treatment, since the circulation of the blood was not discovered by Harvey until nearly 2000 years later. Asclepiades (125-56 B.C.) also a Roman, of a few centuries later than Hippocrates, believed that the body was composed of regularly distributed canals in which nutritive juices moved. Sickness was a disturbance of the normal movement of these juices. He attempted to restore free movement of the nutritive juices by rubbing, but states no direction for the movement.

Galen, five centuries after Hippocrates, varied the direction of massage movements depending on the purpose of the massage and its relation to exercise. Ling at the beginning of the nineteenth century advocated a light stroking in the centrifugal direction, movements with deeper pressure in the centripetal. This concept has held through to the present day writers. In the superficial stroking of Lucas-Championnière, as followed by Mennell, the direction may be either centrifugal or centripetal but without deviation once the direction is established. These later writers have been very definite in expressing the effects which are expected from the movements given in the centripetal direction as compared to those given in the centrifugal direction. Murrell advocated that the direction should be from below upwards and in the direction of the muscle fibers. Hoffa and Bucholz were among the first to mention that the direction was with the venous and lymphatic circulation. Mennell says all deep movements of massage should be performed centripetally to aid the venous and lymphatic flow.

Many authors advocate beginning the movement at the proximal portion of a segment, but the direction of the pressure in each movement is centripetal even though the succession of the movements may be in the centrifugal direction.

Pressure

The amount of pressure seems to have been important from the beginning of the description of massage movements; however, there is a great variance of opinions.

The Greek authors Herodikus (Circa 500 B.C.) and Herodatus (484-425 B.C.) varied the pressure during the movement which was gentle at the first, then with greater pressure and toward the end again gentle.

Later, Hippocrates differentiated in the types of pressure mentioning gentle, hard, soft, and moderate. He emphasized the importance of selection of pressure in technics in order to obtain a desired result. This is shown in the frequently quoted statement: "hard rubbing binds; soft rubbing loosens; much rubbing causes parts to waste; moderate rubbing makes them grow."

Paré, the most renowned surgeon of the sixteenth century recognized a difference in the amount of pressure used. He described three kinds of friction—gentle, medium, and vigorous, and the effects of each.

In the fifteenth, sixteenth, seventeenth and beginning of the eighteenth centuries there seemed to be growing emphasis placed upon

heavy pressure—the extremist being Admiral Henry (1731-1823) of England, who believed that "great violence" was important. He describes some of the manipulations as being painful, "but they cease to be so if persevered in, and become even pleasant." Beveridge emphasized the importance of touch in varying pressure and the difference in the effect produced upon the amount of pressure. In the early part of the nineteenth century he wrote, "the finger of a good rubber will descend upon an excited and painful nerve as gently as the dew on the grass, but upon a torpid callosity as heavily as the hoof of an elephant."

Mezger varied the pressure with the type of movement, that for effleurage was gentle and for massage à friction as "with considerable force." This force must have been considerable as Columbo, one of his contemporaries, stated that Mezger's patients frequently had blue spots on their bodies. Zabludowski, who was known as the "King of German Masseurs," criticized the gentle massage advocated by Lucas-Championnière for the treatment of fractures. Zabludowski said that when "massage becomes painless, it ceases to be massage, and is merely treatment by suggestion." (However, in his book written later (1903), Zabludowski writes that massage is not painful in most cases and when it becomes necessarily painful, the pain should subside.) Bucholz did not agree with Zabludowski's early concepts. He believed all needed effects could be obtained without such abuse of force.

At about this same time Kleen and Hoffa showed they appreciated the finesse of technic, together with knowledge, and they regulated the pressure according to the bulk of the tissues, increasing it when working on the belly of a muscle and lessening it at the ends of the muscle. (In this we see recognition of the early concepts of Herodikus and Herodatus.) They also state that the proper amount can be judged only by practice.

Throughout the late nineteenth and early twentieth centuries many authors give the impression that the greater the pressure, the more effective is the massage. They begin the treatment or series of treatments with gentle pressure and "work up" the tolerance of the patient to greater pressure. Kellogg states that the patient's tolerance is established by prolonged treatment beginning gently and gradually increasing until almost the "whole strength of the operator might be employed without injuring the patient." Despard states that the "vigour" and amount of pressure should vary according to the condition of the patient, being always gentle at the beginning of the course of treatment and gradually increasing in vigor as the patient improves.

Mennell is outstanding in his rationale for the use of massage. Of pressure he states that the amount is dependent solely upon the relaxation of the musculature. When the muscles are relaxed throughout the treatment even a light pressure must influence every structure throughout the part being treated. He believes the movement may be "deep" without in any sense being forcible. His reasoning is that if the muscles are relaxed they offer no more resistance to the movement than so much fluid and any pressure applied on the surface will be transmitted freely to all structures under the hand. He says practice "with a skill that is born only of a delicate sense of touch will show how very light pressure will suffice to compress any structure to its fullest extent and therefore, incidentally to empty the veins and lymphatic spaces." He says that the delusion that stimulation in massage is impossible without the expenditure of muscle energy and vigor is deep rooted and will die hard.

Rate and Rhythm

Some authors vaguely mention the rate of massage movements but few have made statements regarding rhythm. Others combine the two.

Of the early writers Herodikus and Herodatus agree and associate pressure and rate, gentle and slow in the beginning, rapid and heavy in the interim, and ending slow and gentle. Hippocrates in describing treatment of a dislocated shoulder stated "it is necessary to rub the shoulder gently and smoothly." None of the users of massage after Hippocrates make mention of rate or rhythm until those in the eighteenth and nineteenth centuries. Beveridge evidently considered great speed an advantage for he stated that flexibility of the fingers was important as it permitted rapidity of motion. Ling varies rate according to the type of movement: effleurage should be given slowly; rolling, shaking, and tapotement rapidly. Mezger agrees that effleurage should be given slowly.

Graham, Kellogg, and Bucholz are specific in the number of strokes to be given per minute but are not necessarily definite as to the dis-

tance which is covered in each stroke; therefore, the number of strokes has no specific relationship to rate. These authors differ in the number of strokes they specify. For friction Graham specifies 90 to 180 per minute. Bucholz states that speed depends on the effect desired: "In irritable cases a slow gentle stroke may produce a marked effect, while in treating an atrophic limb of an otherwise healthy person, considerable speed, up to 50 to 60 times a minute or more, with a good deal of pressure may be applied." However, Kellogg states that it depends on the type of movement and states the distance to be covered. Stroking, he specifies, should not be more than 1 or 2 inches per second; friction 30 to 80 strokes per minute, varying with the length of stroke; and petrissage "not too rapid," 30 to 90 per minute, "more rapid in small parts."

Kleen varies the rate with the area treated; effleurage on the shoulder and back should be rapid. Lucas-Championnière emphasized that massage should be slow and uniform, a rhythmical repetition. Zabludowski stated that the area covered determined the speed to some extent and compared rhythm to that of music and suggested that a metronome might be used in practice but cannot be a regular guide. Despard varies the rate and rhythm according to the effect desired. For a soothing effect effleurage should be given slowly and rhythmically, and for a stimulating effect the strokes should be "quick and strong." The rate and vigor she states should vary according to the condition of the patient, and all movements should be performed rhythmically.

In stroking movements some authors distinguished between the rate of the primary stroke and the return stroke, making the return stroke more rapid, which makes an uneven rhythm. Mitchell advised this and also stated that one of the common faults of massage is to give the movements too fast. In this Mennell agrees. He says the essentials of superficial stroking are that the movements must be slow, gentle, and rhythmical, and there must be no hesitancy or irregularity about them. The time between the end of the stroke and the beginning of the next must be identical throughout the movement. He believes the rhythm must be even in order to produce an even stimulus. As a rate for the stroke from shoulder to hand he gives 15 movements per minute. In deep stroking he says there is not need for great rapidity as the flow of blood in the veins is slow and of the lymph channels is even slower. Of kneading he states that excessive rapidity is inimical to success and that in friction the rhythm should be slow and unbroken.

Medium

As early as 1000 B.C. the writings of Homer imply that an oily medium was used for massage. In the Odyssey he wrote that beautiful women rubbed and anointed the war-worn heroes to rest and refresh them. Herodatus advised that a "greasy mixture" should be poured over the body before rubbing, and the writings of Plato and Socrates refer to the benefit received from anointing with oils and rubbing as an "assuager of pain." Olive oil was used and it was believed that the oil itself had some curative value. Roman history records that Cicero received great improvement in his health from his anointer.

Celsus made a distinction between rubbing and unction or anointing. The rubbing in of greasy substances he called unction. Other authors later contended that unction could not be performed without friction of some sort. In the days of Galen the massage following exercise was applied with a greater amount of oil than that given before exercise. He recommended rubbing with a towel to produce redness, followed by rubbing with oil for the purpose of "warming up" and softening the body previous to exercise.

Henry was unique in the medium which he used. He devised various instruments and tools which he said "would prevent the nerves and tendons from falling asleep or getting fixed" and by keeping these structures in constant action "the blood would pass quickly through the blood vessels, leaving no fur behind it, so that ossification which so frequently terminates the human existence is prevented." The instruments were made of wood and bone, the knobs were preserved and others made by the use of a file. Ribs of cattle were used principally as it was of great advantage to have them bent. He also used a hammer with a piece of cork covered with leather and the rounded end of a glass vial. Graham followed a similar method to a certain extent in percussion. He suggested that the back of a brush or the sole of a slipper could be used, but even better, were India rubber balls attached to steel or whalebone handles.

In exceptional circumstances, Murrell said, a bundle of swan's feathers, lightly tied to-

gether, could be used for tapotement. Kellogg used the finger nail, the end of a lead pencil, a wooden toothpick or the head of a pin for reflex stroking. On the Island of Tonga in the early nineteenth century it is reported that "three or four little children tread under their feet the whole body of the patient." At about this same time the Russians and Finns used bundles of birch twigs for flagellation preceding steam baths, and the Hawaiians gave massage under water.

The more recent users of massage differ in opinion regarding the use of a medium for massage. Some object to any sort of medium and those who use a medium choose either an oily lubricant of some sort or a powder. The reasons given for "dry massage" or no medium are: it is cleaner, it gives a more certain feeling to the hand, the movements are steadier, it is more stimulating in effect, and it is unnecessary to expose the patient's body. It seems incredible but massage frequently has been given over the patient's clothing. Galen records that when a gymnast inquired of Quintas what was the value of anointment (rubbing with oil) he replied "it makes you take off your tunic."

Many substances are suggested by those who use oily lubricants; both liquid and solid lubricants are used. The more commonly mentioned are: olive oil, glycerine, coconut oil, oil of sweet almonds, and neat's foot oil. Some users prefer solid lubricants because the flowing oils "are hard to handle." The solid lubricants suggested are fat, wool fat, vaseline, lanoline, hogs lard, cold cream, and cocoa butter. Zabludowski was quite specific in his preference for white Virginia vaseline because it was "odorless and tasteless and quite neutral." He said that the chief basis for the use of any lubricant comes from clinical experience and not from any real scientific experiment. The advantages listed by those who recommend oily lubricants are: they make the skin soft, smooth, and slippery, prevent the pain of pulling hair and prevent acne. Those who oppose the use of oily lubricants claim that they promote the growth of hair.

Others who use a medium recommend the use of a powder as they believe it is more pleasant for general massage, makes deep kneading possible, and improves the sense of touch. Several users recommend its use particularly to prevent the moisture of the masseur's hands causing an abrasion on the patient's skin. Grosvenor recommended the use of "fine hair powder" and those of more recent date, talcum or boric powder. A few writers suggest soap suds as a medium.

Mennell says the selection of a medium is a personal factor and believes the best is the simplest, namely: French chalk, which may be improved by adding oil. He, as well as other users, recommends an oily medium, especially when the skin is dry and scaly, and others suggest its use for children, aged, and emaciated persons. Of the later users in this group the reason, although not so stated, undoubtedly is to avoid abrasion of sensitive skin as contrasted to the belief of the early writers that the medium itself has a curative value.

Position of Patient and Physical Therapist

The early writers give very little information on the position of the patient or of the masseur while giving massage. There is no written information of this until about the seventeenth century. However, a bas-relief showing massage for the returned soldiers, as described in Homer's Odyssey, depicts massage given to Ulysses. He is seated and the masseuse is in a most uncomfortable crouching position in front of him giving massage to his leg. Alpinus said the patient should be "extended horizontally." Many of the later writers give the positions in great detail and many of them emphasize that the patient should be relaxed, and then they place the patient in such a position that relaxation seems utterly impossible. Few state reasons for the position to be assumed and seem to disregard entirely any influence which gravity may have upon the venous and lymphatic flow. Ling emphasized that the muscles must be relaxed for many movements, and yet describes rolling and shaking of the arm with the patient seated, holding the arm in a horizontal position, the hand on the table or back of a chair.

Grosvenor's position for massage of the lower extremity, as described by Cleobuery, is: "The female rubber (for Mr. Grosvenor always employed females) [is] seated on a low stool, and taking the patient's limb in her lap (which position gave her command over it) so as to enable her to rub with extended hands." The position of the patient is not given. One would assume that she was seated similar to the position shown in the Greek bas-relief referred to above.

Graham said the patient should be in a

comfortable position with joints midway between flexion and extension and warns that if the "manipulator" is too close to the patient he will be cramped in his movements and if too far away they will be indefinite, superficial, and lacking in energy.

Kleen describes a bench on which the patient lies which should be approachable from all sides, and the masseur stands or sits beside it. He gives much detail for positions of the patient for various areas. For massage of the neck and throat he has the patient sit on the bench.

Hoffa recommends support to the entire length of the part of the body, which is being treated so that the muscles are relaxed, yet he had the patient sit on a stool for massage of the head, neck, shoulder, and upper arm. For elbow, forearm, hand and fingers, an illustration shows the patient sitting with these parts resting on a table, and for the leg and feet the patient sitting on the table with the foot supported in the lap of the masseur. He said that the masseur's position should be "comfortable and not strained," always beside the patient's bed, and avoiding as much as possible frequent and unnecessary change of position. For the thigh the patient is lying down and the masseur sits beside him.

Zabludowski recommends a comfortable and relaxed position for the patient and the position depends upon the part treated. The patient's glasses should be removed and the lighting and room temperature should insure his comfort. He states that some work may even be done in the standing position or that small children may be held in the lap if a table is not available. He emphasized the posture of the masseur and that the standing position was preferred. The masseur should have a sure footing and a coordinated movement to ease his work and eliminate flexing and extending in many joints. Zabludowski adds some interesting rules for the masseur: he should watch his watch chain so it does not bother the patient; he should wear glasses instead of "pince-nez" as it might slide off his nose if he perspires; it is necessary that he wear a jersey (knit) undershirt, heavy or light according to the season; he should not work in street clothes, should remove his rings, have short sleeves and remove things in his pockets that are in the way when he is sitting.

Mitchell recommends that the patient should be reclining and for some areas that the "operator" sit on the edge of the bed with the patient's foot in his lap. Bucholz says the patient should be in a comfortable position, one which would also allow the "operator" to work with sufficient comfort. He does not favor the sitting position for massaging the legs, although he states it may be used for the foot and calf if the patient is sitting on a table and the "operator" in front of him on a chair.

Despard recommends that the patient should be in a comfortable position and the muscles relaxed; yet for back stroking she says the patient may be standing with hands resting against the wall or other support.

Mennell says the points that require most attention in performing all stroking movements are the position of the patient and of the masseur, and the relative position of one to the other. He gives no set rules for positions of either, but says there should be a reason for every position of the masseur and for the position in which the part under treatment is placed. Some of the illustrations in his text show the masseur in the standing and some in the sitting position. He gives an illustration of stroking of the lower extremity to point out some of the common faults of positions of the patient and of the masseur.

In discussing the effect of massage on the venous flow, he considers the effect of gravity of great importance and recommends that the patient be seated on the table in a position which allows relaxation of the abdominal muscles with the thighs supported in order to assist in the venous and lymphatic flow from the distal part of the lower extremity. In treatment of edema of an extremity he recommends elevation of the part while giving the massage.

Duration

Galen was one of the first users of massage to mention the duration of a treatment. He used the trial and error method. He writes, "what shall be the duration of the rubbing it is impossible to declare in words; but the director, being experienced in these matters, on the first day must form a conjecture, which shall not be very accurate, but the next day, having already acquired some experience in the constitution of this subject, he will reduce his conjecture continually until a greater accuracy."

Grosvenor was very specific in his directions for the duration of treatment. He said that

friction should be at first continued for one hour "observing always to rub by the watch."

Murrell said the entire time of a local massage should not exceed eight to ten minutes and that other authorities thought four minutes was enough.

Kleen believed the duration of a treatment was important but that no hard and fast rule could be given. Local massage, he thought, usually should last fifteen minutes and general massage at least half an hour and sometimes longer, while Hoffa suggests ten to twenty minutes for local and thirty to forty-five minutes for general massage. Zabludowski said the duration may be from five to thirty minutes, depending on: the affected area (its size), age of the patient, duration of illness, constitution of the patient, and habits of the patient. He gives an estimate of the entire length of time which the treatment should be continued, which he says is dependent upon the condition to be treated, the prognosis, etc., but it usually is from two to three weeks.

According to Graham, the condition of the patient and the effect of the massage should determine the duration of the treatment. Bucholz says the duration of treatment should depend upon the effect desired. In fresh injury he states five to ten minutes may be adequate, while a general massage should be forty to fifty minutes.

Despard gives a definite period of time for each area of the body and says the duration of the treatment should increase as the condition of the patient improves.

Mennell believes it is necessary to consider the age of the patient when administering massage, particularly when the aim is solely to secure a reflex effect. In the young and the aged the duration of treatment should be lessened. In the treatment of neurasthenia Mennell says the maximum duration is seventy-five minutes, which may be attained in comparatively few cases and never during the earlier stages of treatment. At first twenty minutes is often sufficient and may be gradually increased and toward the end should be decreased in a similar manner. In cases of injury, however, he emphasizes the danger of prolonging the duration of the massage treatment in lieu of active exercise as the patient improves.

Frequency

Celsus, who was not a physician, was a noted medical author and in his De Medicina he wrote merely as an encyclopedist and presented the ideas, from the available literature, which appealed to him. We may presume, therefore, that his writings express some of the ideas which were popular at that time. He gives some detail of massage technic and appreciated the value of correct dosage. He stated that "we should pay no attention to those who define numerically how often anyone is to be rubbed; for this must be gathered from the individual; and if he is very feeble, fifty times may be enough; if more robust, it may be requisite to rub two hundred times, and between both limits according to the strength." He also believed it should be done less frequently in the case of a woman than a man and less frequently for a child or old person than a young man.

Grosvenor advised daily treatment (more or less as the case would permit) and gradually increased to three times daily. Murrell also believed in frequent treatment three or four times daily but the length of his treatments was much shorter than those of Grosvenor.

Kleen believed massage should be at least once daily and in some cases of injury several times daily. Hoffa advised daily massage and Zabludowski daily in most cases but the physical and psychological reactions of the patient should determine the frequency. If quick results were desired, he believed treatments should be given twice daily, but in cases which necessitated a "weaning from massage" the frequency should be gradually lessened to two or three treatments per week.

Graham recognized the frequency of treatment as a part of the dosage of massage which should be regulated according to the condition of the patient. He associated force with the frequency and duration of treatment, local massage being done frequently and general at least once daily. As contrasted to Zabludowski's weaning from massage, Graham said the frequency may be increased after four or five treatments.

Bucholz says that the frequency of treatment will depend largely on the patient's social condition but advises twice daily in many surgical cases. He believes it is wise to begin with short sessions and increase according to the patient's reaction.

In the components of massage technic as recommended by some of even the recent authors, there seems to be no physiological basis

for their technic, particularly in relation to pressure, rate of movement, and the positioning of the patient. The heavy pressure of the fifteenth, sixteenth, seventeenth, and early eighteenth centuries has been supplanted by more gentle massage as introduced by Lucas-Championnère and Mennell in the early twentieth century; yet one is astonished that to a certain extent this was appreciated by Hippocrates who certainly did not have the scientific physiological information which is available today. Bucholz and Hoffa at the beginning of the twentieth century began to show some rational application of massage technic based upon a knowledge of physiology, but in this Mennell is outstanding and is the most rational of all.

This review of the literature on massage technic is evidence of the need of research to determine the rationale of all factors related to massage technic.

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The Use of Springs in Objectively Evaluating Muscle Strength*

Donnamae Winters, B. A., and Ruth Cook, M. A.

Finding an objective means of evaluating muscle strength has always been a problem. The recent advent of DeLorme's Progressive Resistance Exercise technic, and the invention of myodynemeters suitable for clinical use have done much to help resolve this problem. A need still remains, however, for an inexpensive method which makes possible a record of the most minute changes in muscle strength. Spring resistance has been found to be satisfactory.

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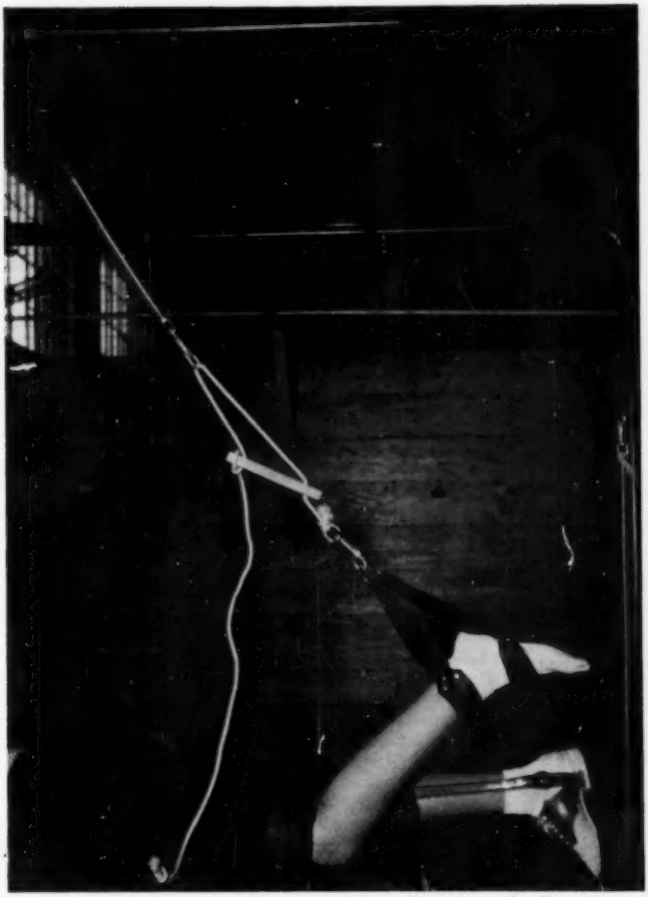
The apparatus needed for testing by spring resistance consists of one or more single or double pulleys, slings of the Guthrie-Smith type, springs of varying capacities, a tape measure, goniometer, snap hooks, and a hook or overhead bar for attachment of the spring-pulley system. All of this apparatus is inexpensive, easily assembled, and requires no additional space in a department.

Exact knowledge of the spring being used is necessary. In general, suitable springs can be found at most hardware stores. We have found in selecting springs that the essential characteristics are spring type and dimensions; for example:



Use of graded spring resistance in testing quadriceps strength. Note the point of attachment directly over the axis of the hip joint; note 45° angle, flexion at knee, note that the line from the upper hook to the ankle is centered with the line of quadriceps pull.

Spring type—Extension
Dimensions—1″ x 12″ x .062″

When buying springs state the general spring type, in this case an extension spring, then give the outside diameter of the coil, the length of the body of the spring, and the diameter of the wire, as shown in the example given. It is important also for the physical therapist to know the total capacity of the spring as this is the first step in selecting a suitable range of springs. As a rule, springs from ten to twelve inches in length allow the best range of motion. At the Morrison Center for Rehabilitation, where we have been

primarily interested in testing muscles with a manual grade of fair or below, capacities for arm and shoulder work range from 7 to 25 pounds, for leg work from 15 to 30 pounds, and for trunks from 40 to 110 pounds.

Additional factors, which must be determined for muscle testing with springs, are the amount of weight which will just open the coils (initial tension), and the amount of weight necessary for each additional inch of stretch. These can be found by mathematical formulae or by placing weights on the spring and measuring the deflection. In the usual extension spring with open ends the initial tension is approximately 10 percent of the total capacity of the spring. The rate (in pounds) per inch of deflection can be found by multiplying the number of active coils by the deflection per coil and then dividing the total capacity of the spring by this number:

$$\text{(lbs. per inch deflection} = \frac{\text{Maximum Capacity}}{\text{No. coils by deflection per coil)}}$$

In order to protect the lighter springs from over-stretch, knowledge of the safe deflection range is often valuable. This is approximately 75 percent of the number of coils by the deflection per coil (.75 by number coils by deflection per coil).

Chart 1 shows some of the springs used at the Center and their characteristics.

When the spring has been selected according to the weight and estimated strength of the part being tested, the patient is positioned so that the specific muscle or muscle group can be allowed full range of motion with minimal effects of friction and gravity. Adequate stabilization also is necessary. The spring, pulley, and sling are attached in such a manner that they are in direct line with the direction of the motion. The starting position of the part should be kept consistent by the use of a goniometer. Only one spring should be used and if two points of support are needed then both pulleys should be attached to one spring. The strength of the spring should be greater than the strength of the muscle or muscle group being tested.

After the preliminary preparations are made the patient attempts a maximal contraction, and the amount of spring deflection is measured. A series of three measurements of each motion is made and the average of these three is used in the calculation of muscle strength. This is obtained by multiplying the range of deflection by the pounds per inch of deflection. If in the positioning of the part the initial tension of the spring has not been overcome, then this must be added to the "product."

The technic and results can be shown more clearly perhaps in the case of Mr. B. On beginning treatment, strengthening of the quadriceps bilaterally was requested by the doctor. Manual muscle examination was performed and an initial measurement of the muscle strength by spring resistance made. For testing of the quadriceps, the patient was placed in a prone position with his feet over the end of the plinth. A sling was placed over the ankle and foot, and the spring-pulley system attached at a point directly above his hip joint in a straight line with the thigh. The pulley was shortened until the knee being tested was in 45 degrees of flexion when the lower extremity musculature

CHART NUMBER 1

Dimension	Total Capacity	Initial Tension	Lbs./Inch Defl. (Max. Cap. divided by no. coils times defl./coil)	Safe Deflection (No. coils times defl./coil times .75)
	Lbs.	Lbs.	Lbs.	Ins.
7/16 x 12 x .054	7.5	.72	.10	52.24
3/4 x 12 x .062	12.78	1.28	.3	37.5
7/8 x 12 x .070	16.9	1.69	.4	14.35
3/4 x 12 x .072	21.6	2.16	.847	19.125
5/8 x 12 x .072	26.5	2.65	1.44	13.725
1 x 12 x .092	33.1	3.31	1.13	21.15
1 x 6 x .105	48.2	4.82	4.7	11.4
7/8 x 12 x .109	55.4	5.5	3.04	22.8
1 x 1½ x .120	73.0	7.3	9.6	8.9
1¼ x 8 x .134	86.6	8.7	7.7	12.5
1 x 12 x .136	111.7	11.17	9.5	17.5

CHART NUMBER 2

Date	Muscle	Manual Grade	Starting Position	Total Capacity of Spring	Spring Initial Tension	Lb./Inch Deflection	Range of Deflection	Effective Muscular Force
						Lb.	Ins.	Lbs.
12-13-50	L. Quad	P	45° flex.	16.9	.....	.4	7⅝	3.05
12-21-50	L. Quad	P	45° flex.	21.6	.....	.847	4½	3.812
1-29-51	L. Quad	P	45° flex.	21.6	.....	.847	4¾	4.023
12-13-50	R. Quad	T+	45° flex.	12.78	.....	.3	3⅝	1.08
12-21-50	R. Quad	T+	45° flex.	12.78	.....	.3	4¼	1.265
1-29-51	R. Quad	T+	45° flex.	17.04	.....	.7	2¾	1.9

was relaxed. Flexion of 45 degrees was chosen because the muscle showed a manual grade of below fair, and the muscular contraction seemed strongest at this starting angle (the physical therapist's hand and arm stabilized the thigh and hip). A tape measure was attached to the spring. Three measurements of extension on each side were made and the measurements recorded. Chart 2 shows the changes in muscle strength obtained over a period of six weeks.

It will be noticed from this chart that although the manual muscle grade remained the same, there was definite measurable improvement in the strength of both quadriceps groups. The left quadriceps increased .973 pounds, and the right quadriceps .82 pounds. The initial tension of the spring did not need to be considered in the calculation of the muscle strength since the weight of the leg eliminated this factor. It was found that although springs of different capacities were used, they did not affect the results as long as they would allow the muscle to stretch the spring enough for measurable deflection.

SUMMARY

Spring resistance can be a useful and practical means of evaluating muscle strength. The equipment is easily assembled and inexpensive. The most minute changes in muscle strength can be determined. At the Morrison Center this has been the only practical means found to date, for evaluating changes in strength of muscles with manual grades of fair or below.

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Our Book Reviewers for December

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The Record Folder: Five Suggested Uses

Mary Eleanor Brown, M. A.

Records are written accounts of events; they are the basis for analysis and research, and serve their greatest use when clearly kept and easily available. Business and industry improve efficiency through studying and analyzing records. Physical Medicine and its supporting therapies, physical, occupational, and speech therapy, need short cuts to record-keeping in order to show their effectiveness and to improve their methods.

Outlined here are five additional purposes which the standard file folder may serve.

Record Folder Uses

1. Keeping Attendance. When attendance is recorded on the front or back of the folder an extra card file for attendance is unnecessary and as a substitute for jotting down dates, a system of signs may be used on calendars printed on the folders themselves. The printing can be a project for groups with printing facilities, such as an occupational therapy department, a printing department in a vocational school, or a voluntary service group.

Oblique lines are suggested to indicate absences, although in some cases it may be better to mark the presences. A key may be formulated as shown on the upper right in Figure 1. The key may be expanded to suit the purposes of the individual program. Physical therapy, occupational therapy, speech therapy, and school can have different symbols. A dot or dash in a particular color can stand for a specific type of instruction. When the facility is small and the various services are centralized, it is suggested that attendance for all activities be kept on the folder through the use of the same calendar. It is possible to have calendars for more than one year by using the other face, or the folder may be turned inside out to accommodate still more calendars if the case load serves persons in need of long-term care.

This system is further aided by housing the folders in a desk-high file on wheels (see Figure 2). These files are obtainable at most office furniture stores, but more modest ones may be built. Suitable ones have been made from discarded hospital bed tables; the tops are removed, side-pieces installed, and rubber free-wheeling casters are applied. They may be moved easily to a place comfortable for working and permit the recorder to work in a seated position. The calendar on an outside face of the folder allows for quick recording without the actual removal of the individual folder from its place. In one center where the folder backs were used for the calendars the entire file was wheeled around and the recording done from the back, the worker moving from the back of the file forward.

By keeping attendance in the way described, it was possible to shorten this procedure for seventy to one hundred subjects from approximately forty minutes to ten minutes a day.

2. Recording Schedule. The folder also may include the schedule in terms of number and length of instruction periods. This is shown in the upper left of Figure 1. Instruction periods scheduled and those actually attended may be posted on the folder at the beginning and end of each week, or at any time when it is found desirable to make these entries. Then by multiplying the number of periods by the length of each period (see bottom of Figure 1), the number of hours spent by the person in the particular therapy department is obtained, and makes a summary report more valid by supplying a figure.

3. Recording Handwriting or Printing. A specimen of the person's handwriting or printing may be recorded. He writes or prints, across

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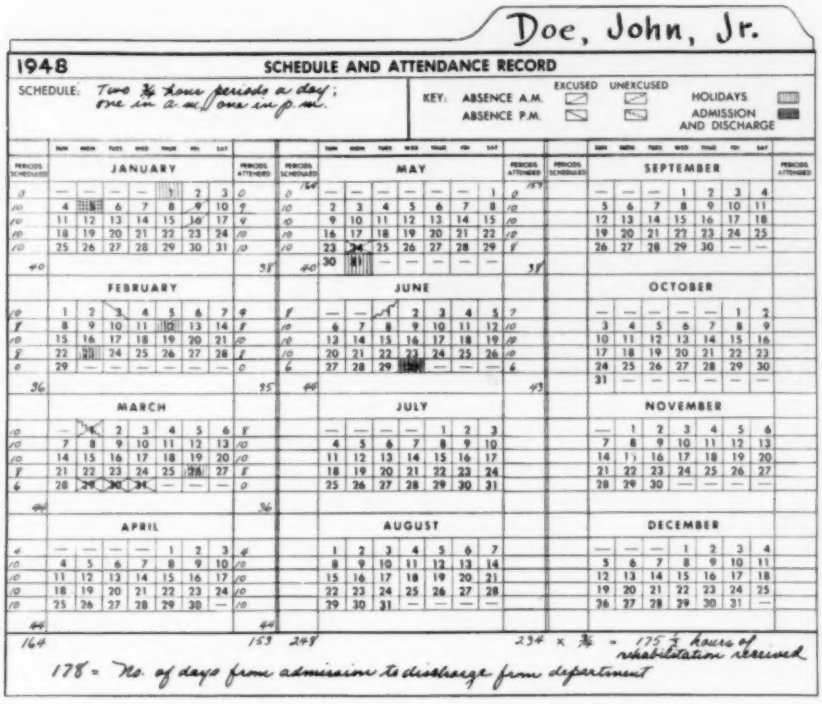

Doe, John, Jr.

1948 SCHEDULE AND ATTENDANCE RECORD

SCHEDULE: Two ¾ hour periods a day; one in a.m. one in p.m.

KEY: ABSENCE A.M. EXCUSED UNEXCUSED ABSENCE P.M. HOLIDAYS ADMISSION AND DISCHARGE

PERIODS SCHEDULED	JANUARY							PERIODS ATTENDED
	SUN	MON	TUES	WED	THUR	FRI	SAT	
0	—	—	—	—	1	2	3	0
10	4	[illegible]	6	7	8	9	10	9
10	11	12	13	14	15	16	17	9
10	18	19	20	21	22	23	24	10
10	25	26	27	28	29	30	31	10
40								38

PERIODS SCHEDULED	FEBRUARY							PERIODS ATTENDED
	SUN	MON	TUES	WED	THUR	FRI	SAT	
10	1	2	3	4	5	6	7	9
8	8	9	10	11	[illegible]	13	14	8
10	15	16	17	18	19	20	21	10
8	22	[illegible]	24	25	26	27	28	8
0	29	—	—	—	—	—	—	0
36								35

PERIODS SCHEDULED	MARCH							PERIODS ATTENDED
	SUN	MON	TUES	WED	THUR	FRI	SAT	
10	—	[illegible]	2	3	4	5	6	8
10	7	8	9	10	11	12	13	10
10	14	15	16	17	18	19	20	10
8	21	22	23	24	25	[illegible]	27	8
6	28	[illegible]	[illegible]	[illegible]	—	—	—	0
44								36

PERIODS SCHEDULED	APRIL							PERIODS ATTENDED
	SUN	MON	TUES	WED	THUR	FRI	SAT	
4	—	—	—	—	1	2	3	4
10	4	5	6	7	8	9	10	10
10	11	12	13	14	15	16	17	10
10	18	19	20	21	22	23	24	10
10	25	26	27	28	29	30	—	10
44								44

PERIODS SCHEDULED	MAY							PERIODS ATTENDED
	SUN	MON	TUES	WED	THUR	FRI	SAT	
0	—	—	—	—	—	—	1	0
10	2	3	4	5	6	7	8	10
10	9	10	11	12	13	14	15	10
10	16	17	18	19	20	21	22	10
10	23	[illegible]	25	26	27	28	29	8
40	30	[illegible]	—	—	—	—	—	38

PERIODS SCHEDULED	JUNE							PERIODS ATTENDED
	SUN	MON	TUES	WED	THUR	FRI	SAT	
8	—	—	[illegible]	2	3	4	5	7
10	6	7	8	9	10	11	12	10
10	13	14	15	16	17	18	19	10
10	20	21	22	23	24	25	26	10
6	27	28	29	[illegible]	—	—	—	6
44								43

PERIODS SCHEDULED	JULY							PERIODS ATTENDED
	SUN	MON	TUES	WED	THUR	FRI	SAT	
	—	—	—	—	1	2	3	
	4	5	6	7	8	9	10	
	11	12	13	14	15	16	17	
	18	19	20	21	22	23	24	
	25	26	27	28	29	30	31	

PERIODS SCHEDULED	AUGUST							PERIODS ATTENDED
	SUN	MON	TUES	WED	THUR	FRI	SAT	
	1	2	3	4	5	6	7	
	8	9	10	11	12	13	14	
	15	16	17	18	19	20	21	
	22	23	24	25	26	27	28	
	29	30	31	—	—	—	—	

PERIODS SCHEDULED	SEPTEMBER							PERIODS ATTENDED
	SUN	MON	TUES	WED	THUR	FRI	SAT	
183	—	—	—	1	2	3	4	
	5	6	7	8	9	10	11	
	12	13	14	15	16	17	18	
	19	20	21	22	23	24	25	
	26	27	28	29	30	—	—	

PERIODS SCHEDULED	OCTOBER							PERIODS ATTENDED
	SUN	MON	TUES	WED	THUR	FRI	SAT	
	—	—	—	—	—	1	2	
	3	4	5	6	7	8	9	
	10	11	12	13	14	15	16	
	17	18	19	20	21	22	23	
	24	25	26	27	28	29	30	
	31	—	—	—	—	—	—	

PERIODS SCHEDULED	NOVEMBER							PERIODS ATTENDED
	SUN	MON	TUES	WED	THUR	FRI	SAT	
	—	1	2	3	4	5	6	
	7	8	9	10	11	12	13	
	14	[illegible]	16	17	18	19	20	
	21	22	23	24	25	26	27	
	28	29	30	—	—	—	—	

PERIODS SCHEDULED	DECEMBER							PERIODS ATTENDED
	SUN	MON	TUES	WED	THUR	FRI	SAT	
	—	—	—	1	2	3	4	
	5	6	7	8	9	10	11	
	12	13	14	15	16	17	18	
	19	20	21	22	23	24	25	
	26	27	28	29	30	31	—	

164 153 248 234 × ¾ = 175½ hours of rehabilitation received

178 = No. of days from admission to discharge from department

Figure 1. Calendar-record for schedule and attendance of John Doe, Jr., printed on the front of a regulation-size file folder. This record is that of an eighteen-year old boy who received rehabilitation instruction at a rehabilitation hospital.

The figures at the bottom show that the young man was scheduled to attend 248 periods of instruction and actually attended 234. Since each period was ¾ of an hour, the total number of hours attended was 175½ hours. The number of months was six, the number of days, 178, the number of weeks, 25.4.

the width of the folder, the sentence, "This is my writing (or printing)," having placed the date above the sentence and affixing his signature below the sentence. Thus in the routine of securing a needed specimen the folder becomes identified and dated. This represents a saving in time, particularly when there is clerical help, as the folder and contents may be sent for typing and filing with no additional notes or explanation.

4. Filing Doctors' Prescriptions and Orders. An envelope may be pasted by its flap in such a way as to permit easy insertion of slips and other small forms or cards used routinely which are not regulation typewriting paper size (Figure 3). Such an envelope makes for easy filing and prevents loss. This permits the files to contain only papers essentially uniform in size, a good filing principle.

Figure 2. Rolling desk-high file for keeping attendance on the calendar-record appearing on the front of each folder.

5. Recording Admission Procedure and Other Data. A particular part of each folder (the inside of the back, for instance), may be set aside for recording such information as, dates when the subject was seen by the members of a screening committee; dates of examinations by specialists; and dates when braces were prescribed, ordered, measured, delivered and repaired. Headings can be printed or stamped on the folder for filling in. One cerebral palsy center keeps track of the admission procedure of each child by means of a rubber stamp on his folder which contains the following:

Examined by	Dates
Orthopedist	.....
Pediatrician	.....
Neurologist	.....
Speech pathologist	.....
Psychologist	.....

An actual record of brace history (of John Doe, Jr.) follows:

Braces	Dates
Prescribed	1/ 7/48
Ordered	1/ 8/48
Measured	1/ 9/48
Fitted	1/15/48
Delivered	2/ 3/48
Out for Repairs	.....
Returned Repaired	.....

A similar shoe history is valuable, as the various lifts and wedges being tried out by the physician frequently are hard to locate among the other clinical notes.

These facts have been presented to show how the simple file folder may house valuable day-to-day figures.

CLINICAL EXAMPLES

The calendar-record for schedule and attendance has been used in a rehabilitation hospital, a cerebral palsy school and a children's orthopedic hospital-school.

A Rehabilitation Hospital.

The schedule and attendance record in Figure 1 is for John Doe, Jr., an eighteen-year-old boy who received his rehabilitation as an inpatient in a rehabilitation hospital.

The figures show the following:

Stay in department	Jan. 5-June 30, 1948, (Inclusive).
No. of months	6
No. of weeks	25.4
No. of days	178
No. of instruction periods scheduled	248
Length of instruction period	¾ hour
No. of hours scheduled	186
No of instruction periods attended	234
No. of hours attended	175.5
Absences, excused	11
Absences, unexcused	3

The full significance of such figures and their most effective use depend upon the problems of the particular facility. The above figures suggest the following items for possible study:

- The average length of stay in terms of years, months, weeks, days, based on the records of numbers of subjects.
- The number of hours of rehabilitation instruction received.
- The number of hours scheduled for therapy as compared with the number of hours spent by therapists performing duties other than therapy.
- The number of absences and the reasons.
- In the case of absences, the disposal by the therapists of the time scheduled for therapy but not attended.
- The cost of instruction for one or any number of persons based on length of stay and hours of instruction received, broken down into types of therapy given.

Such record-keeping permits accumulation of weekly, monthly and/or yearly figures. If amplified by a study of other activities of personnel in terms of hours, a revealing statistical report appears. Such activities as conferences with subjects or parents, staff meetings, record-keeping, in-training courses, hospital rounds with doctors, attendance at clinics, dressing and undressing subjects, taking off and putting on braces, other appliances, skiis and other rehabilitation equipment, accompanying subjects to bathroom and helping them, and housekeep-

ing, may be estimated in terms of time. In this way a therapist's work can be analyzed, organizational flaws spotted, and measures taken to improve the situation.

Any one of the following or similar remedies may be suggested by such analyses:

More clinical aides are needed for dressing and undressing, and other non-professional duties.

A medical social worker is needed for interpretation to parents.

More therapists are needed.

More therapy could be done in the home by instructing parents, thus cutting down the therapists' load in the clinic.

As an example of the practical success of making monthly statistical reports containing some of the items already discussed, it has been possible to show that the subjects in a particular center were receiving individual instruction only sixteen percent of the total time they were present. By employing more therapists, the figures changed through six months, until at the end of this time the subjects were receiving individual instruction sixty-three percent of the time they were present.

	Nov.	*Dec.*	*Jan.*	*Feb.*	*Mar.*	*Apr.*
Percentage of time spent by each subject in which he received instruction .	16	20	18	25	37	63
Percentage of time spent by each subject in which he practiced on his own	84	80	82	75	63	37

Some of the information gathered monthly in order to show these percentages is as follows:

	Nov.	*The following April*
No. of subjects	70	76
No. of hours spent by subjects	950	1624.25
No. of hours spent by each subject	13.6	27.8
No. of staff therapists per day	2.5	8
No. of staff therapists hours spent per subject	162.5	1101
Percentage of time spent by each subject in which he received instruction	16	63
Percentage of time spent by each subject in which he practiced on his own	84	37

Records are pertinent in studying the recently established cerebral palsy clinics and centers. These facilities have appeared during the last few years as a response to the efforts of parents' groups. Often it has been difficult to organize these centers due to financial problems and the shortage of professional personnel. Among the heaviest expenses are housing, transportation, and the many necessary medical specialty services. Results obtained should be studied, and costs analyzed to retain and improve quality of service while reducing expense. Such studies require information clearly recorded and easily obtainable.

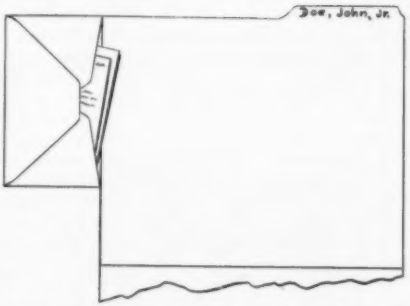

Figure 3. An envelope pasted as shown here takes up little space and serves to preserve such small papers as prescription slips, dental and x-ray appointment cards and other small items which otherwise might be easily lost from the folder.

A Cerebral Palsy School

Mimeographed sheets also may be used for the calendar-record and stapled to the inside of the back of the folder. Good features of this procedure are the possible removal for study purposes, and the easy replacement with subsequent calendar-records. (See Figure 4.)

Two items of importance already have come to light. The question arose as to whether or not "cold shots" had been doing the children enough good to warrant the trouble and expense of administration. Although there was a record of absences, the causes of illnesses were not known. By use of the present key, such information is easy to obtain.

A record-minded assistant found during her daily recording that Tuesdays were frequently taken up with staff meetings, conferences with parents and library study by the children, so that, though scheduled, the periods of treatment were very few. Thus, the system is a check on the schedule itself.

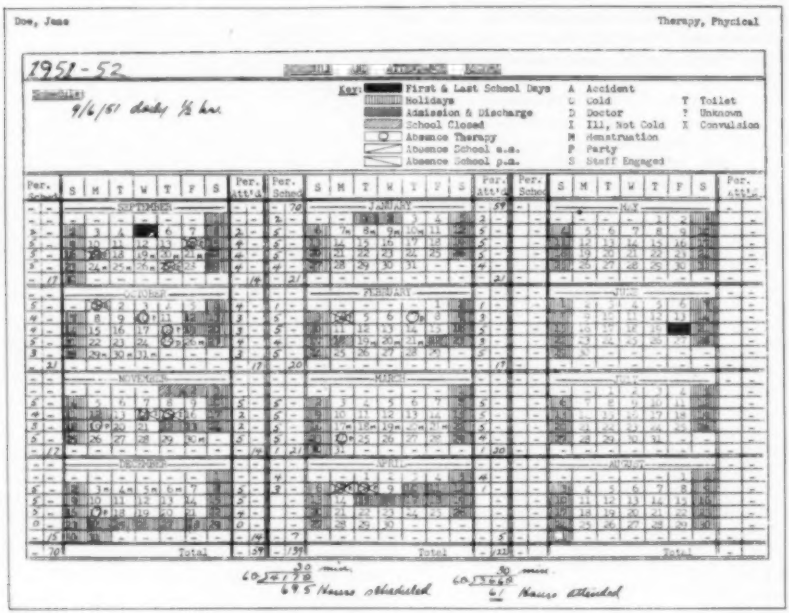

Figure 4. Calendar-record for schedule and attendance in use currently at a cerebral palsy school and an orthopedic hospital-school. Jane Doe is thirteen years old. This is her physical therapy schedule and attendance from September 6, 1951, through April 9, 1952 (the last day before Easter Vacation). The following stands out:

Physical therapy periods missed	16
Hours of physical therapy missed	8
Absences due to colds	6
Absences due to illness, not colds	2
Absences due to parties	3
Absences for unknown reasons	3
Absences due to doctors' examinations	2

An Orthopedic Hospital-School

The same mimeographed sheet is being used in an orthopedic hospital-school, where the services are somewhat decentralized; some phases of physical therapy and occupational therapy are performed in the basement while other phases are carried out on the main floor. At present, separate sheets are being kept for the various therapies. A problem in interpretation may be solved through their use. The question arose as to why there are fewer "treatments" now with five and one-half therapists at a higher total salary outlay, than last year with five therapists at a lower total salary outlay. The explanation—better quality of service toward the total rehabilitation of the patient—will be more acceptable when reinforced with figures.

In such an example as the last one cited, many additional variables may enter. The hospital-school has doubled its capacity, has included severely handicapped cerebral palsied children, as well as a group of six crippled children with bowel and bladder incontinence, has added other professional services such as medical social work, which requires coordination with preexisting services, has set up team conferences for total rehabilitation of patients, has drafted personnel policies, and is about to draw up job descriptions. The word "treatment" has taken on more meaning than it had a year ago. One of the first steps in solving this problem is to add up the number of times

"S" (meaning staff is engaged by unscheduled activities) appears when treatments are scheduled but not given. Fifty-one S's occurred in a seven-week period. Certainly the number is high and indicates a need for study and better planning.

It is important to recognize and sort out the problems, then devise short cuts to answer them specifically. For instance, the calendar-record as set up here can:

check attendance,
supply number of hours of treatment received,
supply reasons for absences or for otherwise not abiding by the schedule as set up,
check feasibility and validity of schedule by studying its relationship to attendance.

It cannot:

define quality of treatment,
supply evidence of progress of patient,
indicate how treatment period is spent,
separate professional and nonprofessional activities performed by a qualified therapist during a treatment period.

For an accurate record of the patient's progress, inventories and/or other examinations may be used, among which are:

Speech evaluation	Clothing inventory
Elementary motor skill inventory	Release and grasp inventory
Range and strength examination	Checklist of appliances, shoes, locomotion aids, special equipment
Daily activity inventory	
Muscle examination	Posture, sitting and chair evaluation
Food intake inventory	Recreational interests and history
Toilet inventory	Prevocational motor skill inventory

For analysis of the treatment period, other means are necessary, such as the daily logs and time schedules commonly devised by official and nonofficial health and welfare agencies.

"I often say that when you can measure what you are speaking about, and express it in numbers, you know something about it; but when you cannot measure it, when you cannot express it in numbers, your knowledge is of a meager and unsatisfactory kind; it may be the beginning of knowledge, but you have scarcely, in your thoughts, advanced to the stage of *Science*, whatever the matter may be."

Lord Kelvin's quotation extols the value of the use of numbers in science. Their incomplete use, however, may lead to erroneous conclusions. An example of this is judging a program by the number of treatments given. A better measure of service is the number of patients totally rehabilitated within a certain period. To obtain a daily activity score of 100, John Doe, Jr., required a rehabilitation period of 178 days. Better still would be figures from the date of admission to a hospital or facility to the first day on a job. By utilizing simple day-by-day records, vital statistical material can be gathered, tabulated, and studied. The conclusions drawn can improve programs for the disabled by shortening the time for their total rehabilitation.

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Ankle Exerciser for Progressive Resistance Exercises

Capt. Dorothy L. Kemske, WMSC

In the field of Physical Medicine, as efforts are made to restore the patient's injured or diseased part to normal or maximum function, there is always the problem of determining objectively when the point is reached. The program of progressive resistance exercises for affected knees is the accepted method. When these exercises are applied to the ankle as treatment and a means of measurement, it is difficult to place the part in a position to insure the use of correct muscle groups.

Since the body is not a machine, there are more factors involved in trying to reduce a disability than merely restoring the strength of muscle groups; however, if the strength of an affected ankle is regained, the patient is well along to maximum function of this part.

There are commercial mechanical devices to exercise the ankle that are superior to this one, but in an overseas hospital imported equipment must be kept at a minimum. Because this simple piece of equipment may be helpful where budgets are limited, this paper is devoted to a description of its construction, the technic used, and the findings derived.

Construction

The diagram (see Figure 1) shows the construction of the exerciser. Scrap lumber from a heavy packing box is used. The boot straps are 1½ inch webbing, long enough so that both ends can be nailed to the underside to eliminate sewing the buckles. The front strap is 32 inches long, and the back strap is 40 inches. The cross-bar is part of a wooden broomstick. The heel is copper and could be made of wood, leather, or plastic, but must be low enough so that it will not cut into the tendon of Achilles during plantarflexion. The foot board is covered with rubberized cloth to prevent slipping and to afford a surface which is easy to clean. The standard orthopedic bag and metal shots are used for weight.

Technic

The patient is seated on a table or bench high enough to place the knee in a right angle. The patient must be instructed to keep his femur stationary and not to rotate it during inversion and eversion, which he will tend to do. The exerciser is placed directly below the knee so that the ankle is in a right angle when the foot is parallel to the floor. Occasionally, the straps may have to be padded, but this does not occur frequently enough to warrant permanent padding. For dorsiflexion the strap of the bag should be passed behind the two outside screws and in front of the center screw; this is to prevent the bag from slipping onto the toes.

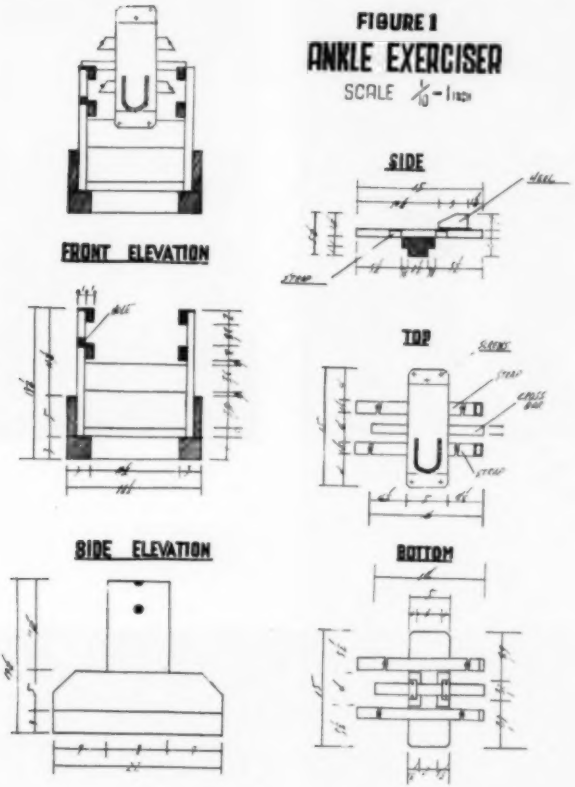
This equipment can be used for either foot, and the ankle can be exercised in six positions. The weights are placed in front for dorsiflexion (Figure 2.), dorsiflexion with inversion (Figure 3)., and dorsiflexion with eversion (Figure 4). The bag is placed in back for plantarflexion (Figure 5.), as well as plantarflexion with inversion and eversion. The first four positions are indicated for the majority of cases. When the weights are in front, the patient must be instructed to lift with the forefoot rather than to push down with the heel, which he will do unless properly instructed.

Not all positions will be used in every case. The positions are indicated by the patient's disability. For instance, in treating pes planus, only the dorsiflexors and invertors will be treated. All the muscle groups are tested the first day so that the strength of the entire ankle is known, then treatment is directed to the weak muscle groups only.

Program

Standard progressive resistance exercises are used. When the patient initiates his treatment,

Physical Therapist—382nd General Hospital, Japan.



the RM (resistance maximum) is determined for the affected and the normal ankles. The normal RM, taken only on the first day, gives a basis for determining when maximum benefit is reached. The average normal RM in each position is 30 pounds, but this of course will vary with the individual.

After RM of the affected ankle is determined, the patient's daily program of exercise is as follows:

1. Lift ½ RM ten times in each position indicated.
2. Lift ¾ RM ten times in each position indicated.
3. Lift RM ten times in each position indicated.

When the turnover of patients is rapid, the patient tries for a new RM as often as he can. This is about every three or four days. The patient must be supervised when the new RM is taken so that he lifts the weight through maximum range of motion.

The RM records are kept on cards (see Figure 6), taped to a board near the exerciser so that the patient can refer to it easily and note his progress (see Figure 7). This type of card can be adapted for measurements of joints other than ankles.

Figure 2. The weights are placed in front to exercise the dorsiflexors of the ankle.

Figure 5. The weights are placed in back for plantarflexion.

Figure 3. Dorsiflexion with inversion.

Figure 4. Dorsiflexion with eversion.

PRE ankle-right

MEASUREMENT RECORD DATE 4 Aug. 51

NAME Jones, John RANK PFC WARD E

DATE	PART	D	DI	DE	P			D	DI	DE	P
4 Aug.	Right Ankle	5	5	5	3	left		30	30	30	30
8 Aug.	"	10	10	10	8						
11 Aug.	"	14	14	14	13						
15 Aug.	"	19	19	19	19						
18 Aug.	"	21	21	21	21						
22 Aug.	"	23	23	23	23						
25 Aug.	"	25	25	25	25						

Figure 6 (left). Card for recording individual Resistance Maximum (RM).

Figure 7 (below). A patient using the ankle exerciser. The record cards are on the wall to his left.

Jones, John

Findings

The ankle exerciser has been used as an adjunct treatment procedure for a variety of disabilities and has been found to have merit in strengthening muscles of the ankle. Of the 75 cases tabulated, percentages are approximately as follows:

Types	Percentage
Missile Wounds	35
Fractures (tibia or tarsals)	30
Sprains	15
Peripheral Nerve Injuries	10
Pes Planus	5
Miscellaneous (arthritis, burns, etc.)	5

In every case the patient's disability included weakness of the muscles in the ankle.

In the three dorsiflexion positions, the patient averages an increase of 11.3 pounds in his RM in a period of 13.6 days of treatment. This gives him an average of .83 pounds increase per day. In plantarflexion, however, the average increase in RM is 12.3 pounds in 13.2 days of treatment, or .93 pounds increase daily. The greatest gains are made during the first two weeks of treatment, although consideration must be given to when the patient becomes ambulatory. These figures are the result of tabulating the RM changes of 75 patients treated with the ankle exerciser and, while they cannot be accepted as absolutely accurate since the majority of the patients leave the hospital prior to reach-

ing maximum benefit, they do give some idea of the progress to be expected of the patient.

SUMMARY

This ankle exerciser has many possibilities and can be improved. For instance, a simple detachable pointer could be screwed into the end of the cross-bar and degrees painted on the side of the stand to measure approximate range of motion. The purpose of this paper, however, is to establish a basis for solving the problem of increasing and measuring the strength of affected ankles through the use of equipment easily constructed in any physical therapy department.

Reprints Available

THE FOLLOWING INFORMATIONAL MATERIAL AND ARTICLES ON PHYSICAL THERAPY ARE AVAILABLE WITHOUT CHARGE:

Available to chapters, interested individuals and prospective students by single copies or in reasonable quantities:

PHYSICAL THERAPY—IS THIS THE DOOR TO YOUR FUTURE?—
An illustrated brochure describing the opportunities for a career in physical therapy.

APPROVED SCHOOLS OF PHYSICAL THERAPY—
A list of schools approved by the Council on Medical Education and Hospitals of the American Medical Association.

SUGGESTIONS FOR PROSPECTIVE STUDENTS—
Outlines the professional course of study for college students preparing for physical therapy. Of value to the high school student who is planning a college program.

QUESTIONS AND ANSWERS—
A concise outline describing physical therapy education and applications.

Available to chapter chairmen, vocational guidance counsellors, libraries and other individuals or groups who wish more information on physical therapy than is offered in the above items:

OUR ASSOCIATION—
An informational booklet on the activities, scope and services of the American Physical Therapy Association.

CODE OF ETHICS—
Ethics for the physical therapist of the American Physical Therapy Association.

PERSONNEL POLICIES FOR QUALIFIED PHYSICAL THERAPISTS—
Suggestions as to salary, hours, vacations, etc. by the American Physical Therapy Association.

POSTGRADUATE COURSES FOR PHYSICAL THERAPISTS—

RECRUITMENT POSTER—
Attractive, colorful, throw-away bulletin board poster to help vocational guidance and recruiting.

JOB OF THE PHYSICAL THERAPIST—
A complete description of what the physical therapist does, where he works and how he functions in the professional field as well as what type of individual he is. (Single copies are free to counsellors, libraries and chapters; additional single copies 50c each, 10-25 copies 35c each, 25 or more copies 25c each.)

U. S. ARMY, U. S. AIR FORCE AND VETERANS ADMINISTRATION PAMPHLETS—
Separate folders listing education, employment or service opportunities in each organization.

MEMBERS, STUDENT MEMBERS OF THE ASSOCIATION AND LIBRARIES MAY HAVE ONE FREE COPY OF EACH SCIENTIFIC REPRINT FOR WHICH THERE IS A CHARGE EXCEPT THE SPECIAL ISSUES OF THE REVIEW AND OTHER SPECIAL MATERIALS FOR WHICH A FEE MUST BE CHARGED:

Scientific Reprints

PHYSICAL THERAPY IN MEDICAL DISEASES OF THE CHEST—*Evelyn A. May* (10c)

ADMINISTRATION OF A COMMUNITY REHABILITATION CENTER—*Hazel E. Furscott* (10c)

PHYSICAL THERAPY IN THE EARLY CARE OF COLD INJURIES—*Mary E. Sacksteder, Capt., WMSC* (10c)

TOYS, GAMES AND APPARATUS FOR CHILDREN WITH CEREBRAL PALSY—*Gladys G. Rogers and Leah Thomas* (10c)

WHEEL CHAIRS—*George G. Deaver, M.D.* (5c)

METHODS OF CLINICAL INSTRUCTION IN PHYSICAL THERAPY—*Beatrice E. Whitcomb, Capt., WMSC* (10c)

THE USE OF LEAD-UP FUNCTIONAL EXERCISES TO SUPPLEMENT MAT WORK—*Morton Hoberman, M.D., Erbert F. Cicenia, Hyman L. Dervitz and Oscar C. Sampson* (10c)

PHYSICAL THERAPY IN THE HOME—*Arthur L. Watkins, M.D.* (5c)

PHYSICAL THERAPY IN STATE CRIPPLED CHILDREN'S PROGRAM—*Clara M. Arrington* (5c)

THE REHABILITATION OF APHASICS—*Dorothy Britton* (10c)

Special Materials

BIBLIOGRAPHY ON NATURAL CHILDBIRTH (10c)

READING REFERENCES FOR ELECTRICAL DIAGNOSIS AND ELECTRICAL STIMULATION— (10c)

FILM LIST OF SPECIAL INTEREST TO PHYSICAL THERAPISTS AND STUDENT PHYSICAL THERAPISTS
These films may be secured on rental, loan or sale depending on the course. Unless otherwise specified, all films are believed to be 16 mm. (15c)

SPECIAL FUNCTIONAL ISSUE OF THE *Review* (NOVEMBER 1949)—
Contains eight articles by leading physicians and physical therapists on functional training, crutch walking and wheel chairs. There are twenty-six abstracts of articles on functional training from current medical journals. (50c)

POLIO ISSUE OF THE *Review* (JULY 1951)—
Contains eight articles by leading physicians and physical therapists. There are thirty-one abstracts from current medical journals. (50c)

CEREBRAL PALSY ISSUE OF THE *Review* (FEBRUARY 1952)—
Contains six articles by outstanding experts in the field of cerebral palsy. (50c)

PHYSIOLOGY OF THE HEART AND CIRCULATION AND ITS CLINICAL APPLICATION IN PHYSICAL MEDICINE—
A bound edition of the papers presented in a symposium at the 1950 annual conference of the American Physical Therapy Association with introduction by Harry D. Bouman, M.D., Coordinator. ($1.00)

ESSENTIALS OF A HOSPITAL DEPARTMENT—PHYSICAL THERAPY—
This manual is designed to supply broad guidance in planning, installing, equipping and administering a physical therapy department in a hospital. Compiled by experts in many fields and published by the American Hospital Association. (To members 25c)

PLAN AND SPECIFICATIONS FOR AN ALL-WELDED STEEL TREATMENT POOL— (No charge)

ORGANIZATIONAL GUIDE FOR SCHOOLS OF PHYSICAL THERAPY—
Gives a broad interpretation of the essentials of a physical therapy school as established by the Council on Medical Education and Hospitals of the American Medical Association. (No charge)

SPECIAL POLIO ISSUE OF THE *REVIEW*

The July issue of the *Physical Therapy Review*, which includes timely and informative articles on the treatment of the poliomyelitis patient with emphasis on his care in the respirator, is available at special rates on quantity orders. Single copies of the July 1952 journal are 75c per copy; in orders of 10 to 50 it will be 50c; 50 to 100, 35c; 100 or more, 25c each. There are special rates for students in approved schools of physical therapy.

All requests should be addressed to American Physical Therapy Association, 1790 Broadway, New York 19, N. Y.

Editorials

The amount of space devoted in a recent issue of the *Review* to changes in the Bylaws and Code of Ethics testifies to their importance. These amendments were adopted by the House of Delegates only after careful thought and full discussion. Amendments, however significant of change, should only reemphasize the content and value of our Bylaws and Code of Ethics.

There are few of our members who do not have some interest in a sport or game either as participants or spectators. It is safe to assume, therefore, that each is familiar with the rules governing the game of his choice, and no one would question the necessity of learning those rules to make the game more interesting and meaningful.

The bylaws of any organization are the rules and regulations governing that body. It is strange therefore that the people most closely concerned with the future of the organization, and whose professional lives are first affected by its conduct, are often unfamiliar with its basic governing laws. Unfortunately, it is true that many A. P. T. A. members are unaware of the content of national as well as chapter bylaws.

We should like to hope that every member reads the copy of Bylaws and Code of Ethics which he receives when he joins our Association. It is probably true that these little booklets are carefully put away then and forgotten. How much more efficient and interesting our meetings would be if each of us was truly familiar with at least the basic facts contained in bylaws.

Bylaws are adopted to provide both the rule by majority and the rights of minority. They exist to insure the realization of the greatest good, accomplished with a minimum of effort, for the greatest number. If we are familiar with the basic provisions of our bylaws we are then in a position to propose changes designed to keep our organization vital and to protect its members.

The Bylaws and Code of Ethics of the American Physical Therapy Association are in every respect potent guides for the wise development and intelligent growth of the one group whose status and improvement should be of greatest importance to each of us. The greatest asset we have for progress is individual familiarity with and intelligent use of our bylaws.

Are We Participants in or Spectators at our Annual Conference?

Several recently published articles have emphasized certain responsibilities that the individual members of the American Physical Therapy Association must assume if physical therapy is to attain mature stature as a profession. While every occupation or profession demands certain skills, the dividing line between a technical and a professional individual depends not on his ability as a craftsman, but rather, on his fundamental knowledge of basic principles, his capacity for analytical evaluation of methods and procedures, and his personal contributions to the organization of which he is a part. The first two qualities, in reality, may be considered the foundation upon which the third, i.e. the dissemination of ideas, is built. In other words, the quality and volume of information published, delivered orally or presented in the form of exhibits reflects the professional virility of the organization.

In searching for a yardstick to measure the professional status of the present day physical therapist, it seemed that an analysis of the member participation in the annual conferences of organizations whose membership has similar educational background and professional standing might serve as a useful basis for comparison. Thus, the programs of the 1952 annual conferences of five sister organizations were obtained and the pertinent data tallied (see table). Included are the National Conference of Social Workers; Annual Convention of the American Association for Health, Physical Education, and Recreation; Biennial Nursing Convention; Thirty-fifth Annual Meeting American Dietetic Association; Thirty-fifth Annual Conference American Occupational Therapy Association; and the Twenty-ninth Annual Conference American Physical Therapy Association. These were selected because many physical therapists have either a nursing background or a B.S. degree in physical education, the dietitians and physical therapists have always been linked together in the armed forces, and all groups are ancillary workers interested in maintaining health or in the rehabilitation of the sick and disabled.

Participation was counted only when a formal presentation was made as indicated by the printed program. In some instances the type of meeting was announced without naming the participants. The totals arrived at do not include individuals whose names appeared as participants in the business meetings, but do embrace the chairman, moderator or presiding officer, even though the extent to which this latter group of individuals participated in the conduct of a given session is unknown. Business meetings occupied from one to three days of the various conferences and are included in the total number of conference days listed in the table.

In general, the larger and older the organization the higher the incidence of member participation, despite the fact that the conference was no longer in duration. Factors which contributed to the large number of member participants were the frequency of simultaneous sessions due to the diversity of interests within the group, the tendency to limit the majority of presentations to 10 or 15 minutes and the type of meetings. For example, the physical education program featured the thought provoking general topic which was presented in a lecture and was then followed by small discussion groups under planned leadership. Because of

TABLE

Professional Organization	Years of Conference	No. Conference Days	No. Participants	Member Participants
Social Workers	79	6	567	503
Physical Educators	67	7	694	546
Nurses	56	6	102	85
Dietitians	35	6	125	86
Occupational Therapists	35	8	79	34
Physical Therapists	29	8	80	32

the many fields represented within the social worker, nursing, and physical education groups, members with a common interest sponsored their own sections. The continuity of the conference was then maintained by the dual device, a convention theme and periodic general sessions.

While physicians contributed their knowledge and experiences to every organizational program, the number of doctors participating appeared to be indirectly proportional to the age of the group. This is understandable because experience is inducive to independence and the younger organizations are also those who serve the physician most directly.

Unique to the physical therapy convention was the large number of listed educational exhibits. Some of the organizations showed large numbers of commercial motion pictures but few if any, except physical therapy had films produced by members.

The American Physical Therapy Association is the youngest of the organizations listed. It should be commended for the achievements of the past 29 years. The rate of growth in the future will depend on the professional contributions of each member, be it on the local or national level. Eighteen per cent of the active members of the Association attended the 1952 national conference and eight tenths of one per cent contributed to the program by the reading of papers, serving as chairman of sessions, work shop instructors, or the presentation of exhibits or films. Are we participants in or spectators at our annual conference?

SARA JANE HOUTZ
SARAH E. GRUSS

World Confederation for Physical Therapy

1st International Congress, September 7 to 12, 1953, in London.
(See November issue for details on application)

Travel plans should be made well in advance since we are advised that transatlantic bookings are heavy.

Although room reservations in London should be made through Thomas Cook and Sons' offices in this country, other planning may be through your own travel agent.

The Thomas Mooney Travel Service, 1790 Broadway, New York 19, N. Y., will be glad to work with members planning to go, either on an independent plan or with colleagues. Mr. Mooney has planned travel for members of the National Office staff.

World Health Organization

The question of the recognition of non-governmental organizations by the World Health Organization has been referred to a Subcommittee of WHO and all applications, including that of the World Confederation for Physical Therapy must await the recommendations of the Subcommittee.

The World Health Organization has agreed to receive from the World Confederation for Physical Therapy names of physical therapists willing to work in WHO teams in underdeveloped countries. If any physical therapists in the member-countries of the World Confederation are interested, please write giving full particulars to the Honorable Secretary of the World Confederation for Physical Therapy, Miss M. J. Neilson, Tavistock House South, Tavistock Square, London WC 1, England.

Union of International Associations

An Outline of the Work of the Union of International Associations

(Based on an article by the Secretary of U. I. A., Mr. G. P. Speeckaert)

"International action operates in a field which the human mind is only just beginning to explore. The science and technology of internationalism, international politics, law, economics, welfare, hygiene, all these subjects are awaiting, in order that they may develop on a firm foundation, the elaboration of an international biology of which we do not as yet possess even the rudiments."

This passage, taken from "Thoughts on the Development of International Relations," published by Dr. Rene Sand in the January 1951 edition of the N.G.O. Bulletin of the U.I.A., was used by Mr. Speeckaert to sum up the motives behind the work of U.I.A.

Having organically the form of an Institute, with a maximum of a hundred members, and

Courtesy of British Information Services

BUCKINGHAM PALACE

aided by associates and corresponding organizations (which are, in fact, international organizations themselves), the U.I.A. Service Centre carries out research into international non-governmental activity and tries to help N.G.O's in their work.

Enriched, and at the same time weighed down by a venturesome past beginning in 1907, the U.I.A. on resuming its activities in 1948, was primarily concerned with charting its structure and program of work in the light of the postwar situation. A scheme, drawn up by the Executive Council in September 1950 for modifying the statutes, was ratified by the General Assembly in February 1951. The reorganization was complete in 1951 by the enrollment of:

1. members (at present 36 in number) representing, Belgium, Ceylon, Denmark, France, Germany, India, Italy, Netherlands, Norway, Sweden, Switzerland, United Kingdom and the United States.
2. associates (at present 24 in number) from Belgium, Colombia, Denmark, Italy, New Zealand, Norway, Sweden, Switzerland, United Kingdom and the United States.
3. corresponding organizations (5 Non-Governmental Organizations having consultative status, category A, with the Economic and Social Council of the United Nations, 15 N.G.O's having consultative status, category B, and 9 N.G.O's on the register, as well as 36 other N.G.O's making a total of 65 international organizations.

(This number has since been increased by 16. The World Confederation for Physical Therapy is a corresponding organization in Category 3.)

Corresponding organizations retain complete autonomy and pay no subscription other than the yearly subscription to the N.G.O. Bulletin, published monthly. They undertake to furnish the U.I.A. Service Centre with general information on their activities; for instance, the World Confederation for Physical Therapy's Six-monthly Bulletin is forwarded to the Centre, and details of the International Congress to be held in 1953 have been published in the diary of International Congresses in the N.G.O. Bulletin.

Meeting to Advance Rehabilitation Program

The United Nations Ad Hoc Technical Working Party on the Rehabilitation of the Physically Handicapped will meet in New York in February 1953 to study the further development of the UN program in this field.

Composed of representatives of the United Nations and the interested Specialized Agencies, the Working Party is expected to include the economic aspects of rehabilitation and services

for the deaf and hard of hearing on its agenda. Dr. Harold Balme serves as its chairman.

A conference of nongovernmental organizations interested in the rehabilitation program will be called prior to the Working Party meeting. Such a conference met in Geneva in October 1951 at the time of the Working Party's third session. Twenty-three nongovernmental organizations were represented at the Geneva meeting. Donald V. Wilson, Secretary General, attended on behalf of the International Society for the Welfare of Cripples.

Review Receives Award

The *Physical Therapy Review* has been awarded a Certificate of Excellence for its exhibit at the third Annual Magazine Show held in New York City, October 15 to 24. This competition is sponsored each year by the American Institute of Graphic Arts, a national, non-profit, educational organization, whose object is ". . . to raise the standard and aid the extension and development toward perfection of the graphic arts in the United States." While not essentially organized as a competition, the purpose of the annual Magazine Show is to stimulate efforts in improving the standards of design and production of magazines.

The *Review* was one of 563 magazines invited to submit issues for possible inclusion in the annual exhibition. The judges evaluated the artistic and mechanical accomplishments of a cross-section of magazines produced in the United States and Canada, and chose 149 to be hung at the Show.

In the introduction to the exhibit catalogue, it was stated that, "Careful planning and craftsmanlike execution of the visual presentation of both reading matter and illustrations here represented are of noteworthy merit. It should be emphasized too, that the exhibits on display are representative of a consistent excellence throughout each of the publications selected by the judges."

The magazines were judged in these categories: 1) Layout and Design, 2) Illustration and Photography, 3) Typography and Lettering, 4) Editorial Visual Presentation, 5) Cover Design, 6) Printing Craftsmanship. The *Review* was awarded the Certificate of Excellence in category 2), Illustration and Photography. Pages 170-171, selected from the April 1952 issue, carried photographs by Henri Mucci, a member of the Association, and a drawing by Vincent Privitera, a student member.

Index to Current Literature

Anterior Poliomyelitis

The 1951 *Epidemic of Poliomyelitis in the City of Milwaukee.* Max J. Fox, M. D. The Wisconsin Medical Journal, August 1952.

Cerebral Palsy

Etiological Factors in Cerebral Palsy. George G. Deaver, M. D. Bulletin of the New York Academy of Medicine, August 1952.

Dermatology

The Management of Acne Vulgaris. Robert L. Day and Nelson Paul Anderson. Postgraduate Medicine, July 1952.

Fractures

Intramedullary Fixation of Fractures of the Forearm. R. H. Hall, M. D., E. I. Bugg, M. D., and R. E. Vitolo, M. D. Southern Medical Journal, September 1952.

Heat and Cold

Frostbite: An Analysis of 71 *Cases.* Edward A. Edwards, M. D., and Major Roy W. Leeper, U. S. A. Journal of the American Medical Association, July 26, 1952.

Manipulation

Manipulation: An Explanation of Osteopathic Technique. Alan Stoddard, M. B. British Journal of Physical Medicine, July 1952.

Physical Medicine

The Role of Occupational Therapy in the Physical Medicine Management of Physical Disabilities. Charles D. Shields, M. D., Wayne R. Oelhafen, M. D., and Helen R. Sheehan. Southern Medical Journal, May 1952.

Ultraviolet

Ultraviolet Irradiation of Blood in Man: Studies of 68 *Patients.* Steven O. Schwartz, M. D., Sherman R. Kaplan, M. D., James Stengle, M. D., Fern L. Stevenson, M. D., and Mary Vincenti. Journal of the American Medical Association, July 26, 1952.

Association Activities

The Director Reports:

Last month I mentioned that the Committee on suggested revisions of the Essentials of a School of Physical Therapy was meeting in Chicago. Although no report can be given at this time, I thought you'd like to know that a tremendous amount of work was done. The Committee approached the problem with vision and courage, and prepared suggestions in keeping with present-day concepts of education in general, and in physical therapy specifically.

These suggestions are being discussed at regional meetings of physical therapy directors of the approved schools the week end of November 1. It was recognized that there was still much work to do and the Essentials Committee wished to have the thinking from all the schools prior to presenting a report to the Executive Committee at its semiannual meeting November 20 to 22.

The Regional meetings are being held in New York, Chicago, Houston and Los Angeles. School directors are attending the meetings at their own expense. This contribution in time, thought, and money in the interest of their profession is deeply appreciated by all of us. The final proposals, after all discussions and recommendations are in and have been evaluated and approved by the Essentials Committee and the Executive Committee, will be submitted to the Council on Medical Education and Hospitals of the American Medical Association for its consideration.

The list of all standing and special committees appointed by the Executive Committee will appear in the January *Review*. All of these will be working for you and in the interests of the Association. The success of their endeavors will depend on the cooperation of every member. Be ready to help when asked, volunteer your services and help coordinate all efforts to develop the profession, increase the number of physical therapists, and thus meet the demands for service.

Wear your pin and emblem—the symbols of your profession.

I was pleased to have a letter recently from Carol Spensley, President of the South Dakota Chapter. She said some people go to the Black Hills to dig gold, but they went to dig up members for the South Dakota Chapter and with success. One was a former inactive member now married and living on a ranch, who read about the meeting in the paper. "It was the largest meeting yet," Miss Spensley stated, "and the most strenuous." By 1953 they hope to have doubled the number of members. Many plans for recruitment were made, for exhibits, newspaper articles, radio and career day talks. Good luck and congratulations to a young and vigorous chapter working state wide, despite the long distances and weather. Miss Spensley reminded me that the chapter was born in a South Dakota Blizzard!

MILDRED ELSON
Executive Director

Chapter News

Massachusetts

The Education Chairman, Katherine Carlisle, and Louise Hills attended the New England regional meeting of the National Vocational Guidance Association to represent physical therapy. Informational material was sent by the New Hampshire Chapter also.

Miss Carlisle reports that the interest and response were wonderful and that those attending were delighted to have so much material available. In the last two days of the meeting the physical therapists talked with 61 guidance directors about physical therapy as a career and lined up tentative "Career Day" coverage with 26 from five New England States.

New York

More than 60 members of the four New York chapters met in Syracuse, October 4, to adopt bylaws and form one state chapter. This plan had been previously approved in business meetings of each of the chapters. Under the new organization each of the four

chapters will continue to function as a district, to hold meetings, and carry on business throughout the year. The presidents of the districts will serve as directors on the Executive Board of the chapter.

The following were elected officers:

President .....Verona Blair, Buffalo
Vice-president .....Alice Seligman, N.Y.C.
Recording Secretary .....Theodore Martin, N.Y.C.
Corresponding Secretary ..Thelma Holmes, Rochester
Treasurer .....Susanna Deal, Troy

The following are directors:

Elizabeth Ammerman ....Eastern New York
George Rickert .....Central New York
Elizabeth Addoms .....New York City
Martha Morrow .....Western New York

The Executive Board held its first meeting in New York City November 1. In making this move for one state chapter, the members recognized the need and the advantage of having one organization to coordinate state activities and to represent the entire group in legislative and other matters. At the same time they have provided for the districts to maintain regional representation, and their bylaws allow for growth by the formation of new districts when warranted.

Virginia

About 150 members and guests attended the following outstanding all day program presented by the Virginia Chapter on September 27.

Amputations and Gait Training

Principles of Surgery in Amputation of the Lower Extremity—Dr. Carl Maxwell
Biomechanics of the Erect Position with Special Reference to the Amputee—Miss Signe Brunnstrom
Lower Extremity Prostheses—Film
Gait Training for the Amputee—Miss Signe Brunnstrom and Mr. Donald Kerr
Clinical Demonstration—Dr. Maxwell, Miss Brunnstrom, Mr. Kerr. Miss Brunnstrom was formerly at Kessler Institute, where Dr. Maxwell is Associate Medical Director, and Mr. Kerr is a member of the staff.

The National Blood Program is building a plasma reserve for military, civil defense and civilian use. Lend your help. Give a pint of your blood today through your local Red Cross chapter.

Membership News

Marriages

Mary Lou Goldsmith of Oneonta, New York, to Arnold Edward Spence of Allen Park, Mich.

Shirley L. West of Cambridge, Mass., now Mrs. Shirley W. Moriarty, Louisville, Ky.

Phyllis Causton of Portland, Ore., now Mrs. Phyllis C. Boord, Anacartes, Wash.

Lt. Mary C. Driscoll of Washington, D. C., now Lt. Mary D. Olexa, Washington, D. C.

Lucille A. Thomas of Philadelphia, Pa., now Mrs. Lucille T. Long, Philadelphia, Pa.

Gloria W. LeMaire of La Grange, Ill., now Mrs. Gloria L. Verbic, Chicago, Ill.

Katherine A. Allen of St. Paul, Minn., now Mrs. Katherine A. Murphy, Wakefield, Mass.

Kay Murota of Berkeley, Calif., now Mrs. Kay M. Chow, Berkeley, Calif.

Betty May Marshall of Pueblo, Colo., to Dr. Hans Peter Hartman, Zurich, Switzerland

Capt. Ardes Porter of Ft. Campbell, Ky., now Capt. Ardes P. Kelleher, Ft. Campbell, Ky.

Anne M. Grimm of Brooklyn, N. Y., now Mrs. Anne G. Nolte, Schenectady, N. Y.

John D. Gressett of Imola, Calif., to Jean Poland of Sacramento, Calif., now residing in Houston, Texas

Joan W. Augustus of Chicago, Ill., now Mrs. Joan A. Dix, Chicago, Ill.

Anne Miller of Richmond, Va., now Mrs. Anne M. Nottingham, Richmond, Va.

Cynthia Smith of Boston, Mass., to John A. McFalls, Boston, Mass.

Jeanne L. Philp of Rocky Hill, Conn., to Wesley A. Holmes, Rocky Hill, Conn.

JoAnne E. McNally of Pittsburgh, Pa., now Mrs. JoAnne M. Runzo, Pittsburgh, Pa.

Lillian Pearl of Brighton, Mass., now Mrs. Lillian P. Zarren, New Orleans, La.

School News

Northwestern Graduation

Gertrude Beard Honored

The graduation exercises for the thirty-first class in physical therapy at Northwestern Medical School were held on October 3, 1952. It was the occasion also of the twenty-fifth anniversary of the founding of the school.

Dr. Charles Molander, Assistant Professor of Physical Medicine, in presenting the certificates to the fifteen graduates recalled the vision and work of the late Dr. J. Stanley Coulter, co-founder of the course with Gertrude Beard. Miss Beard, who has retired after twenty-five

years of service to the school, he stated, had not only contributed quality to the development of the school, but as President of the American Physical Therapy Association, member of the Board of Directors, Business Manager of the *Review*, and member of many national committees had worked unceasingly and devotedly for the development and recognition of her profession.

An annual custom at the graduation exercises is the "pinning" of the graduates. The class has been one hundred percent student membership, and all have been transferred to active membership. Miss Beard "pinned" each graduate with the symbol of the Association, the official pin.

Mildred Elson, alumna of the Northwestern University Physical Therapy School, former instructor, and now Executive Director of the American Physical Therapy Association, and President of the World Confederation for Physical Therapy, gave the graduate address. Miss Elson said in part:

"From time immemorial one generation has been giving much the same advice to the next. Speakers have been attempting to inspire graduates to bigger and better accomplishments and to say something new and different. One of our common queries is, 'What's new?' and the usual reply is, 'Not much.' Contrastingly I thought I'd see what is old—though not *too* old. I picked up the *Reviews* of 1924 as I recalled having seen a graduating address to the Second Post World War I class at Walter Reed. This is what Dr. Curtis Lee Hall, Professor of Orthopedic Surgery at George Washington University, said in part in his speech, *The Value and Place of Physiotherapy in Medicine*:

> "'The Aides first in France blazed the way for tremendous work. Their work was little understood or appreciated by the medical profession. The war undoubtedly taught us a great many new things in the care of disease and run down conditions, and people under the stress and strain of general activity of work . . . We can shorten the time of incapacitation by the use of the methods you have learned. Physiotherapy has a tremendous place in modern medicine. It is a very necessary part of the treatment and rehabilitation of patients . . . More and more the medical profession is realizing the importance and necessity of carrying through the patient from whatever particular condition he may have to perfect health, if possible. You young ladies have a wonderful career before you and you may well be proud that you are graduates of Walter Reed. Your reputation has gone before you and you must live up to your reputation.'

"In the same year here in Chicago at the Third Annual Meeting of the Association, Dr. John Coulter deplored the shortage of trained workers (there were 200 members then), and suggested that the Association set a standard of education. He also urged that physiotherapists and occupational therapists work in contact.

"Miss Beck, President of the Association, in talking about standards: 'I think we all have in our minds the highest type of service that we can render, and that does not mean technical service only . . . , it means personality, ideals, and interest, and the two working together must carry us forward. If we will work with that in mind for registration through state legislation and for schools, then we can give to the medical profession a group of women to whom they can say—"will you help us out on such and such a problem?"'

"Miss Neil, who was principal of the Spalding School and who sparked the program for education and treatment of crippled children in the public schools, in discussing the program and eligibility for the class said: 'The child eligible to a special public school is one who by reason of congenital deformity, accident, or disease cannot attend regular schools with safety and profit during the period of his physical rehabilitation and simultaneous mental development and social adjustment.' Miss Neil went on to say that in the center of the program was the physical therapist, because the foundation of the whole thing was physical rehabilitation.

"Dr. Gaenslen of Milwaukee emphasized that not only the neuromuscular apparatus must be functioning properly, but the will of the patient to get well must be stimulated, and he must not be content to be an invalid.

"Dr. Lowman of Los Angeles, urged the Association to break through the inertia of some of the educators and medical men and get a live educational program under way so the demand for trained workers could be filled.

"All of these quotes have a very familiar ring; they could have been said yesterday, and will no doubt be repeated tomorrow—not only in the United States, but all over the world.

"Dr. Coulter, to whom all of us in physical therapy owe a deep debt of gratitude, emphasized throughout his life the importance of educational standards, the need for more well educated physical therapists and coordination of all personnel working with the handicapped. He recognized the value of, and encouraged research and study of what others have done as far back as there was the printed word.

"What has made Northwestern an outstanding school of physical therapy? What has made the reputation which has gone on before you? Is it because of the excellent course in anatomy —Northwestern was the *first* to offer dissection —or the course in other basic sciences—or technics? They are factors—but to me it has been due to the ideals and concepts in education and training for service of two people—Dr. Coulter and Miss Beard, who founded this school twenty-five years ago. As I travel about the country and visit with many of the alumnae, the conversation invariably turns to Northwestern, and always with words of gratitude for what they received here, and it's not entirely 'book larning.' Not strangely, many statements are prefaced with, 'Miss Beard said,' or 'if Miss Beard hadn't made me do thus and so,'—'I never appreciated the importance of our course in ethics, or what we learned about the profession and the Association from Miss Beard until I was on the job.'

"Life during the twelve months of physical therapy at Northwestern is never easy. There is much to learn. To take raw recruits and mold them into professional workers in one short year is no easy task, and I can assure you it was probably as hard on Miss Beard and her staff as it was on you. 'How did she put up with me?' many of you have said. 'She was never discouraged, never stopped trying.' She seemed tireless in her efforts to graduate each and every student with all the knowledge and understanding that she felt was necessary to be a good physical therapist. In addition to that, she spent many hours in serving her professional organization . . .

"It has been my privilege to have been a friend and colleague of Miss Beard's for many years. I look back upon my associations here with deep gratitude and pleasure.

"You who are being graduated have a rich heritage on which you can build a rewarding future in your professional lives and in your personal lives. There is no formula for individual success I can give you, but you might keep this in mind, it's from a March 1923 editorial in the *Review*, 'Personally Responsible':

> "'It's not the individual
> Nor the army as a whole
> It's the everlasting team work
> Of every blooming soul.'"

Following the graduation exercises, the Northwestern University Alumni Association honored the graduates, Miss Beard, and Miss Dean, former instructor. Dr. Barry J. Anson, Professor of Anatomy at Northwestern University, Medical School, presided as toastmaster. One hundred-and-fifty friends were present, and many more sent greetings. Miss Beard and Miss Dean were presented with gifts from the alumni and friends in appreciation of their work. There were many toasts to Miss Beard from the faculty of the Medical School, the students, alumni, the Illinois Chapter, and other guests including Catherine Worthingham, Ph.D., Director of Professional Education of the National Foundation for Infantile Paralysis, and Dr. H. Bouman, Professor of Physical Medicine at the University of Wisconsin Medical School.

Both Miss Beard and Miss Dean are now associated with Dr. Emil Hauser in a new rehabilitation center in Winnetka.

Student Participation For Recruitment

Each year the University of Pennsylvania holds a High School Day to which interested students in the senior year of the various high schools in Pennsylvania and nearby states are invited to visit all departments in the University. It is hoped that by introducing them to the facilities and programs available they will have a better concept of the varied careers open to them.

In order to present the opportunities open in physical therapy, the students of the Division of Physical Therapy, School of Auxiliary Medical Services prepared and presented a series of "live" demonstrations depicting all of the various procedures used in treatment clinics. These students acted both as "patients" and as therapists and explained the types of machines used, the objective of the treatment, and gave some brief information as to the type and scope of subjects studied in the course.

This demonstration proved of great interest to the prospective students and gave them a complete picture of the opportunities open in a career in physical therapy.

Stafford L. Osborne

Stafford L. Osborne, Ph.D., suburban Oak Park, Professor of Physical Medicine at Northwestern University Medical School, and a member of the staff there since 1926, died October 26 in Wesley Memorial Hospital.

Dr. Osborne was a pioneer in the field of physical medicine. He had written more than 100 articles on his research and had co-authored two books. A year ago, he received a distinguished service cross from the American Congress of Physical Medicine, one of three men to receive the award in recognition of outstanding work in his field.

Medical Service Corps, U.S.N.R. Physical Therapy

It is now possible for a senior student enrolled or accepted for enrollment in the last academic year of a physical therapy course leading to a certificate or degree at one of the schools approved by the Council on Medical Education and Hospitals of the American Medical Association to apply for a reserve commission (Ensign grade) in the U. S. Naval Reserve.

1. Qualification:
   a. Sex—Women
   b. Age—21 but not over 31½ at time of application.
   c. Educational—as above.
2. The Applicant in addition will be required to:
   a. Sign a statement that she is unmarried and will remain unmarried until completion of her course of training.
   b. Agree to remain on active duty for two years after completion of professional training.
3. Appointment:
   Selected applicants will be appointed in the grade of Ensign in U. S. Naval Reserve.
   Appointees will continue their professional training on active duty receiving full pay and allowances of an Ensign in the Naval Service.
   Base Pay, $222.30—Quarters $68.40 Subsistence $47.88 or $338.58 monthly.
   Applications may be obtained from any recruiting office of the Navy throughout the country.

The Army Physical Therapy Training Program

The Army Medical Service is now accepting applications for its spring, 1953, class in the Physical Therapy Course conducted at the Medical Field Service School, Brooke Army Medical Center, Fort Sam Houston, Texas. Selection of students for this class will be made on February 10.

In addition to this course qualified young women who have completed the didactic requirements of an approved civilian physical therapy course may apply to participate in the Army Physical Therapy Clinical Practice Program. A selected student is commissioned in the Women's Medical Specialist Corps Reserve and assigned to one of the large Army hospitals for the period of clinical affiliation prerequisite to her graduation from the civilian course in which she is enrolled.

Information concerning either of these programs may be obtained by writing to: The Surgeon General, Department of the Army, Attention: Chief, Women's Medical Specialist Corps, Washington 25, D. C.

* * * *

Twenty-two physical therapy students, all newly commissioned in the Women's Medical Specialist Corps Reserve reported to the Medical Field Service School at Brooke Army Medical Center on October 15 to embark on their professional training.

New Student Members

Albany Hospital	
Joan Crummey	Marion L. Holmes
Elizabeth Anne Goddard	Ruth M. MacBain
Columbia University	
Leland F. Benger, Jr.	Helen L. Mockler
Barbara Greenstein	Andrew Papinchak
Barbara Ann King	Suzanne P. Phillips
Doris H. Koopman	Robert Ransky
Janet L. Kraissl	Clifford M. Shoemaker
Barbara A. Lash	Lorraine E. Stuckman
Richard M. Lash	Eugene C. Waldbauer
Jean McCarty	Paula M. Whiting
D. T. Watson, School of Physiatrics	
Robert N. Baldasary	Wilma Lange
Dana P. Bretton	Lois M. Mansberger
Margaret Buchanan	Frederick A. Monaco
Norma D. Curcio	Barbara W. Myers
Shirley J. Dias	Helen Parks
Suzanne E. Downing	Anne Pascasio
Alice C. Ellis	Helen M. Prasek
Shirley Ann Estermeyer	Rocafort Giovanna
Saida M. Gonzalez	Henriette E. Rougraff
Peter J. Helpy	Harry L. Soliday
Delilah M. Higley	Florence M. Thompson
Betty G. Koplovitz	Ruth A. Wehofer

The XV Olympic Games *

THEODORE CORBITT, M.A.

The Summer Games of the XV Olympiad of the modern era were held in Helsinki, Finland, July 19 through August 3, 1952. The 69 competing nations entered 5,871 athletes for the various contests.

The Finnish people, intensely interested in the Olympic Games, and happy at the privilege of acting as hosts, will always be remembered by the competitors for their good job of organization and management of the Games. Many Finns took their vacations during the two weeks of the Games—in fact, some factories were closed during that time. It was reported also that some hospital patients, who had a choice, delayed planned surgery so as to be able to follow the contests.

The Olympians were quartered in two separate camps or villages. The smaller Olympic Village at Otaniemi, located in a Finnish technical school students' home, about six miles from the Stadium, housed the U.S.S.R. and six other Communist countries including Red China. The majority of the athletes lived and trained in a suburb of Helsinki called Kapyla. The Kapyla Olympic Village consisted of a new modern housing project built for that purpose. Civilians were scheduled to move into these apartments after the visitors departed for home. Most of the female competitors lived in the Women's Nursing School, located in another section of Helsinki.

The U.S. Olympic Committee assumed responsibility for medical care for minor illnesses and injuries suffered by the Americans. Accompanying the U.S. Olympic team were two doctors and a nurse. They were responsible for the medical care of about 400 American athletes and officials.

A medical clinic for all Olympic personnel was set up at the Kapyla school building, located near the Olympic Village. A physician was on duty at all times. Regular clinic hours were held in the mornings. Several wards were set up in one part of the school, staffed by Finnish medical personnel, and used for observation and minor illnesses. In emergencies and serious illnesses, Olympic personnel were sent to a Military Hospital in Helsinki. For example, soon after the U.S. team arrived, two appendicitis patients were sent to the military hospital after being examined by doctors at the Kapyla Clinic. Other cases were also sent to this hospital.

There were three Finnish physical therapists on duty in the mornings at the Kapyla School Policlinic and they were paid for their services. They administered physical therapy, as prescribed by the team doctors, to injured athletes of all nations in the big Olympic Village. These young women worked either in local hospitals or did private physical therapy work in the afternoons.

Physical therapy measures receiving most use included infra-red and diathermy. Ultraviolet was available but not used, although Dr. Harry McPhee, U.S. team physician, stated that it probably should have been used because of the variable weather during the Games. Following a heat wave, the weather was mostly cloudy and rainy with occasional bursts of sunshine. The Finns apologized profusely for this "bad" weather, but they need not have because the athletes ignored the elements to perform as never before in setting new Olympic records.

Among the injuries suffered by the U. S. Olympians were: sprained ankles, hands, and shoulders; low back sprains; soft tissue injuries, especially "pulled" muscles; and a dislocated clavicle.

The medical care set up in the Russian Village was similar to that at Kapyla, except that Finnish physical therapists were on duty in the afternoons at the former station.

Physical therapy was also administered by a team of seven college (or university) athletic trainers who accompanied the U.S. Olympic team. They came from all sections of the country having been invited to go on the trip as volunteers. All are members of the National Athletic Trainers Association, a professional organization for trainers. One of the trainers had received some formal physical therapy training, but at an institution which he described as not giving a course approved by the American Medical Association's Council on Medical Education and Hospitals.

The services of these men were used as needed by the athletes entered in the 17 different sports. Physicians and trainers held meetings to establish policies and procedures and to coordinate activities in the care of the athletes. The result was a good working relationship between these units. The trainers

* Cleared by the U.S. Olympic Committee.

took care of minor troubles of the athletes. Serious problems were referred to the team physicians. Since these athletes were in top physical condition, there were not many serious problems; however, several men were nursing injured legs before the team left for Helsinki. To speed up recovery, heat, in the form of diathermy, hot packs, and hot baths, plus massage and rest or restrained training were employed at Princeton University where the track and field team trained during the week prior to the departure for Finland. Athletes on the various teams had two weeks left in which to recover from injuries incurred in the rugged tryouts for the Olympic teams.

Treatments were continued in Helsinki and these injuries, plus others sustained in training, mended so that most athletes were able to start in their events. The excellent care given to the athletes aided recovery but the element of time was the paramount factor. An additional few days or a week of rest and treatments would have made a big difference in the performances of some of the athletes — including several potential gold medalists.

Physical measures used by the trainers included massage, simple exercises (e.g., passive stretching), and heat in various forms. Most of their work consisted of massaging the athletes before and/or following the training sessions or competitions. These men also had equipment in their quarters for use if required at other times.

There was a blind masseur attached to the Finnish Olympic team. He traveled about the Village with the aid of one of the uniformed school boys who acted as messengers and errand runners. Other such handicapped masseurs are to be found in Helsinki. Not all countries could afford to send trainers with their teams, but it was learned that there were masseurs available, free, for the athletes in the Village. A phone call brought one to the quarters of those interested in this service.

In the Olympic Village at Kapyla, the inevitable Sauna baths were available in the basements of the apartment houses, although not all of them were in operation. One bath next door to the American quarters saw much use by the athletes.

The Sauna, a national institution in Finland, is a steam bath in which water is poured on heated stones to produce steam in a small closed room. The bather starts off standing in the room and then sits on stands of varying heights. The higher up you go, the hotter the air. Having a bucket of cold water handy to pour over the head and face helps when the heat becomes almost unbearable.

A switch of birch twigs is used to beat the body—its purpose being to increase the circulation. It is usual to conclude the bath with a dip in a lake after a thorough scrubbing. In city apartment houses cold showers substitute for the lake.

The Sauna serves to toughen the physique, to improve the circulation, and to cleanse the body. The invigorating effect of the Sauna is said to be responsible to a great extent for the athletic prowess of the Finns. These baths are found in some of the hospitals and non-ambulatory patients desiring to use them are carried into the baths.

As you may have seen in some of the Olympic pictures taken in the Stadium, there were a number of wheel chair patients among the 74,000 spectators at the track and field competitions. They were placed near the marathon gate, on the grass strip between the stands and the brick-red running track. These patients came from the Kauniala Institute for Severely Wounded, located in the vicinity of Helsinki, where some of Finland's 50,000 permanently disabled war veterans are hospitalized. The Olympic Committee and the Women's Clubs of the Disabled Ex-Service Men's Associations made arrangements for ten patients (paraplegics and amputees) to attend the contests each day. These disabled fans came rain or shine to witness the greatest meet of modern times, as 21 out of 24 men's events saw either new records set or old records matched. The female contestants were equally as good.

Wheel chairs often were seen on the highways passing the Olympic Village. The occupants were either traveling to work or attending to other chores; while others came to peer through the Village fence to see what might be seen. These vehicles are tricycle mechanisms and are propelled by either levers or hand cranks. These vehicles are provided by the Finnish government for veterans with certain types of injuries. In addition to those equipped with hand-operated mechanisms, some of the chairs are motorized.

This is the story of the role that physical therapy and physical therapeutic agents played

in the 1952 Olympic Games. The modern series of Olympic Games is not as important in the scheme of things as were the celebrations of the ancient Olympiads, but their universal appeal means that they are here to stay. As the competition gets progressively stiffer, the stresses and strains on the human body also increase, with tougher training routines being used to meet these greater demands on the body. Inevitably there will be physical breakdowns in the bodies of some men. Some types of athletic injuries are not being altogether successfully coped with, but rest, protective strapping, and physical therapeutic agents are used routinely to send the injured man back, with a minimum loss of time, to engage in further athletic struggles. Competing in and witnessing the Games is an unforgettable experience.

Mr. Corbitt is a member of the American Physical Therapy Association, and of the American Registry of Physical Therapists. He received his B.S. degree in education at the University of Cincinnati in June, 1942, and his certificate in physical therapy from the School of Education, New York University in September 1948. He was awarded a master's degree in physical therapy from New York University May 1950. Mr. Corbitt is Physical Therapist at the Institute for the Crippled and Disabled in New York City, and participated in the Olympic Games as a member of the New York Pioneer Club's Long Distance Running Team.

General News

Fellowships in Physical Medicine And Rehabilitation

The National Foundation for Infantile Paralysis announces the availability of a limited number of postdoctoral clinical fellowships in physical medicine and rehabilitation to candidates who wish to become eligible for certification in that field.

Fellowships will cover a period of one to three years at training centers which have been approved for residencies in physical medicine and rehabilitation. Stipends to Fellows are based on the individual need of each applicant. An appropriation of $325,000 in March of Dimes funds has been made to cover the cost of the program.

Eligibility requirements include United States citizenship, graduation from an approved school of medicine, completion of at least a one-year internship in an approved hospital, and a license to practice medicine in at least one state. The age limit is 40. Selection of candidates will be made on a competitive basis by a Clinical Fellowship Committee composed of leaders in the field of medicine and professional education.

In addition to these full-term fellowships, the National Foundation is making available a limited number of short-term fellowships to physicians who wish to become better acquainted with physical medicine and rehabilitation as it relates to their particular specialties. Such training is being offered to physicians who, in addition to meeting the other requirements, have completed a minimum of one-year residency in orthopedics, pediatrics, neurology or internal medicine. For these fellowships which will cover a period of training of three months to one year at centers which place special emphasis on physical medicine in relation to the applicant's specialty, the National Foundation has provided a special appropriation of $51,050.

Complete information concerning qualifications and applications on both types of fellowships may be obtained from the Division of Professional Education, the National Foundation for Infantile Paralysis, 120 Broadway, New York 5, N. Y.

Liebel-Flarsheim Opens New Plant

On October 4, the Liebel-Flarsheim Co. moved from a six-story building in downtown Cincinnati to a stream-lined one-floor plant on an 11½ acre site in the surburban area. This new brick building, covering 125,000 square feet of floor space, is nearly twice the size of the former plant.

In keeping with today's ultra-modern factory planning, glass enclosed supervisory offices are centrally located in the manufacturing area for more efficient, on-the-spot production supervision. Manufacturing is integrated to a high level of quality. This policy is exemplified by the completely equipped, capably staffed tool and die making department maintained to build the company's own precision production tools. Intricate testing devices and the latest methods of quality control go hand-in-hand with this integration to ensure the manufacture of the

best possible apparatus for the medical profession.

These complete and modern facilities will greatly extend the service that Liebel-Flarsheim can provide to the medical profession.

Croonian Lectures

The Croonian Lectures on Muscular Movements and Remarks on Paralysis of the Trunk in Hemiplegia, by the late Charles Beevor, M.D., F.R.C.P., are available in a paper-back edition through the publisher, the Macmillan Company (St. Martin's Press) New York City. The price is $2.00.

These lectures were delivered before the Royal College of Physicians of London, June 1903. Beevor's valuable studies are, to a large extent, lost knowledge; yet knowledge that should not be lost. His accurate and minute clinical observations have been a basis upon which systems of muscle reeducation have been developed.

Their availability was brought to our attention by Signe Brunnstrom.

UN Survey Mission Visits Latin America

A survey mission sponsored jointly by the United Nations and the World Health Organization visited several nations in South and Central America during August and September in connection with the proposed establishment in that region of a rehabilitation, demonstration, and training center.

Dr. Thomas M. Ling, director of Roffey Park Rehabilitation Centre in England, and Dr. Thomas McKneely of the United States Public Health Service comprised the mission.

After visiting Brazil, Paraguay, Chile, Bolivia, and Mexico, Drs. Ling and McKneely will make recommendations concerning assistance by the United Nations in the development of a center for demonstration and training personnel in providing services for the rehabilitation of disabled persons.

The proposed center would be available to all nations in the South and Central American region which desire to use such facilities in the development of rehabilitation services.

Meet Our New Contributors

Gertrude Beard, who is affiliated with the Winnetka Rehabilitation Clinic, recently retired after twenty-five years as Physical Therapy Director, Northwestern University Medical School. She received her nursing preparation at the Monmouth Hospital Training School for Nurses, and her physical therapy background at Harvard, Northwestern, and at the Pennsylvania Orthopedic Hospital. In World War I, she served with the United States Army Nurse Corps.

Miss Beard has held the positions of Supervisor, Physical Therapy Department, at Wesley Memorial and Passavant Memorial Hospitals in Chicago, and with Dr. John S. Coulter established the School of Physical Therapy at Northwestern Medical School. The high standards which have marked this course have been attributed in large part to Miss Beard's interest in the progress and welfare of each of her students.

She has always been active in the American Physical Therapy Association, serving as President of the Illinois Chapter, and as President and Director of the Association. She also served as Business Manager, Editor, and Associate Editor of the *Physical Therapy Review*.

Ruth Cook, Supervisor, Polio Unit, Morrison Center for Rehabilitation, San Francisco, enrolled at the University of Pennsylvania for prephysical therapy training, and received her physical therapy diploma from D. T. Watson School of Physiatrics.

Following this, Miss Cook spent four and a half years in the United States Army, stationed at Fort Jay, New York, and Braintree, Essex, England. In 1946 she entered Stanford University and completed work for her A.B. and M.A. degrees.

Miss Cook is a member of the American Physical Therapy Association, the American Registry of Physical Therapists, and holds the commission of captain in the U. S. Army Reserve Corps.

Dorothy L. Kemske was Chief of Physical Therapy at the 141st General Hospital, Japan, when the article, "Ankle Exerciser for Progressive Resistance Exercises," which appears in this issue of the *Review*, was written. At present, she is stationed at the 382nd General Hospital.

Prior to her appointment in the United States Army, Captain Kemske was graduated with a B.S. degree in physical education from La Cross State Teachers College, and was an instructor in physical education at Sheboygan, Wisconsin, for two years.

Captain Kemske's physical therapy training was received at Ashford General and Oliver General Hospitals. She has served in the Army as physical therapist for six years. Captain Kemske is a member of the American Physical Therapy Association.

Donnamae Winters, Chief of Physical Therapy, Shriners Hospital for Crippled Children, San Francisco, and former Assistant Director, Physical Therapy, Polio Unit, Morrison Center for Rehabilitation, matriculated at the University of Montana and was graduated with an A.B. degree. Her physical therapy training was received at Stanford University, 1948 to 1949.

Miss Winters served in the United States Army and holds the commission of lieutenant in the U. S. Army Reserve Corps. She is a member of the American Physical Therapy Association, the American Registry of Physical Therapists, and the National Rehabilitation Association.

Schools of Physical Therapy

APPROVED BY THE COUNCIL ON MEDICAL EDUCATION AND HOSPITALS
OF THE AMERICAN MEDICAL ASSOCIATION

Graduates of these schools are eligible for membership in the American Physical Therapy Association.

Name and Location of School	Medical Director and Technical Director	Entrance Requirements	Length of Course	Classes Start	Certificate, Degree, or Diploma
CALIFORNIA					
[1] **Childrens Hospital Society,** Los Angeles (in affiliation with University of California, Los Angeles)	Samuel S. Mathews, M.D. Mary J. Dodge	a[3]-b[3]-d-e g[4]	14 mo 4 yrs	Sept	Certificate Degree
[1] **College of Medical Evangelists,** Loma Linda	F. B. Moor, M.D. R. Wm. Berdan	a-b-c-d-e g	15 mo 4 yrs	Sept	Certificate Degree
[1] **Univ. of So. California,** Los Angeles	Charles L. Lowman, M.D. Charlotte W. Anderson	a-b-d-e g[4]	14 mo 4 yrs	Sept Sept-Feb	Certificate Degree & Cert.
[1] **Univ. of California Medical School,** San Francisco	Lucile M. Eising, M.D. Margery Wagner	d-e g	12 mo 4 yrs	Sept-Feb	Certificate Degree
[1] **Stanford Univ.,** Palo Alto	Wm. Northway, M.D. Lucille Daniels	a-d-e-f g[4]	12 mo 4 yrs	Jan-June or Sept	Certificate Degree
COLORADO					
[1] **Univ. of Colorado Medical Center,** Denver	Harold Dinken, M.D. Dorothy Hoag	a[3]-b-d-e g[4]	12 mo 4 yrs	Sept	Certificate Degree
ILLINOIS					
Northwestern Univ. Medical School, Chicago	Emil D. W. Hauser, M.D. Elizabeth C. Wood	a-b[3]-d-e	12 mo	Oct	Certificate
IOWA					
[1] **Univ. of Iowa,** Iowa City	W. D. Paul, M.D. Olive C. Farr	b-e	12 mo	Sept	Certificate
KANSAS					
[1] **Univ. of Kansas School of Medicine,** Kansas City	Donald L. Rose, M.D. Ruth Monteith	a-b-d-e g[4]	12 mo 4 yrs	Feb-Sept	Certificate Degree
MASSACHUSETTS					
Bouve-Boston School, in affiliation with Tufts College, Medford 55	Howard Moore, M.D. Constance K. Greene	g[4]	4 yrs	Sept	Degree
Simmons College, Boston	Wm. T. Green, M.D. Arthur L. Watkins, M.D. Shirley Cogland	a[3]-b-d-e g[4]	16 mo 4½ yrs	Sept	Diploma Degree
Boston Univ., Sargent College of Physical Education, Cambridge	Kenneth Christophe, M.D. Adelaide McGarrett	a-b-d-e f-g[4]	12 mo 2 or 4 yrs	Sept	Certificate Degree
MINNESOTA					
[1] **Univ. of Minnesota,** Minneapolis	Frederic J. Kottke, M.D. Ruby Green Overmann	d-f-g[4]	2 yrs	Sept	Degree
[1] **Mayo Clinic,** Rochester	Earl C. Elkins, M.D. Darrell Hunt	a-b-c-d-e	2 yrs	Sept	Certificate
MISSOURI					
[1] **Washington Univ. School of Medicine,** St. Louis	Sedgwick Mead, M.D. Beatrice F. Schulz	f-g[4]	2 or 4 yrs	Sept	Degree
[1] **St. Louis Univ. School of Nursing,** St. Louis	A. J. Kotkis, M.D. Sr. Mary Imelda	f-g[4]	2 or 4 yrs	Jan-Sept	Degree

Name and Location of School	Medical Director and Technical Director	Entrance Requirements	Length of Course	Classes Start	Certificate, Degree, or Diploma
NEW YORK					
Albany Hospital, Albany (in affiliation with Russell Sage College, Troy)	John W. Ghormley, M.D. Gladys Woods	a-b-d-e g[4]	12 mo 4 yrs	Sept	Certificate Degree
[1] **Columbia Univ.,** New York	Wm. B. Snow, M.D. Mary E. Callahan	a-b[3]-e f	12 mo 2 yrs	Sept	Certificate Degree
[1] **New York Univ., School of Education,** New York	George G. Deaver, M.D. Elizabeth C. Addoms	a[3]-b[3]-d-e g[4]	12 mo 4 yrs	Sept	Certificate Degree
NORTH CAROLINA					
[1] **Duke Univ., School of Medicine,** Durham	Lenox Baker, M.D. Helen Kaiser	a[3]-b[3]-d-e	15 mo	Oct	Certificate
OHIO					
[1] **The Frank E. Bunts Educational Institute** (in affiliation with the Cleveland Clinic)	Paul A. Nelson, M.D. Dorothy Sparks	a-b-d-e	12 mo	Oct	Certificate Degree
PENNSYLVANIA					
[1] **D. T. Watson School of Physiatrics,** Leetsdale	Jessie Wright, M.D. Kathryn Kelley	a[3]-b[3]-d-e	12 mo	Oct	Diploma
[1] **Univ. of Pa. School of Auxiliary Med. Serv.,** Division of Physical Therapy, Philadelphia	George M. Piersol, M.D. Dorothy Baethke	e g[4]	12 mo 4 yrs	Sept-Feb Sept	Certificate Cert. & Degree
TEXAS					
[1] **Hermann Hospital,** Houston	Oscar O. Selke, Jr., M.D. Elizabeth McK. Barkley	a-b-d-e	12 mo	Oct	Certificate
[1] **Univ. of Texas School of Medicine,** Galveston	G. W. N. Eggers, M.D. Ruby Decker	a-b-e d	12 mo	Jan	Certificate Degree
VIRGINIA					
[1] **Med. College of Va.,** Baruch Center of Phys. Med., Richmond (in affiliation with Richmond Prof. Inst.)	Herbert W. Park, M.D. Susanne Hirt	a-b-d-e g[4]	12 mo 4 yrs	Sept	Diploma Degree
WISCONSIN					
[1] **Univ. of Wisconsin Med. School,** Madison	Harry D. Bouman, M.D. Margaret Kohli	a-b-c-e-f g[4]	12 mo 4 yrs	Sept Sept-Feb	Certificate Cert. & Degree
U. S. ARMY MEDICAL SERVICE					
Medical Field Service School, Brooke Army Medical Center, San Antonio, Texas, and Fitzsimons, Walter Reed, or Letterman Army Hospitals	Charles D. Shields, Lt. Col., M.C. Agnes P. Snyder, Major, WMSC	e	12[2]	Mar-Sept	Certificate

Entrance Requirements

FOR ONE-YEAR COURSE
a = Graduation from accredited school of nursing.
b = Baccalaureate degree with major in physical education.
c = Two years of college with science courses.
d = Three years of college with science courses.
e = Baccalaureate degree with required science courses.

FOR TWO-YEAR COURSE
f = Two years of college with science courses.

FOR FOUR-YEAR COURSE
g = High school graduation.

Footnotes

[1] Male students admitted.

[2] Apply directly to the Surgeon General, Department of the Army, Washington 25, D. C.

[3] Additional college science credits required.

[4] Advanced standing students accepted.

Please address initial correspondence to the School of Physical Therapy in the institutions listed. Tuition and fees will vary from school to school.

Abstracts

A Method of Partitional Calorimetry of Individual Skin Areas

Alrick B. Hertzman, Ph.D., Walter C. Randall, Ph.D., Clarence N. Peiss, Ph.D., Helge E. Ederstrom, Ph.D., and Russel Seckendorf, M.S. In AMERICAN JOURNAL OF PHYSICAL MEDICINE, 31:3:170, June 1952.

A method of partitional calorimetry which is applicable to the measurement of the radiative, convective, and evaporative heat losses from a limited skin surface (fore-head, palm, thigh, etc.) was based on measurements of skin and environmental temperatures and cutaneous evaporative rates. Radiation was calculated from the Stefan-Boltzman equation; convection was estimated from the air insulation which in turn was approximated from the application of the diffusion equation to the evaporation of water. The local evaporative rates were measured by means of desiccating capsules.

The sources of error are described. The total body losses of heat via radiation and convection from the skin cannot be obtained from the sum of the weighted regional rates. For reasons given in the text, this is not a criticism of regional partitional calorimetry. Total cutaneous evaporation is closely approximated by the sum of the weighted regional rates.

The Treatment of Acute Poliomyelitis

Philip M. Stimson, M.D., In THE PENNSYLVANIA MEDICAL JOURNAL, 55:7:649, July 1952.

There are good reasons why mild and questionable cases of poliomyelitis might well be cared for at home rather than be hurried off to a hospital. In most homes, entirely satisfactory care can be given such cases. The details of this care are described. Serious cases of poliomyelitis, such as those with bulbar and breathing difficulties, should be taken to hospitals especially equipped with the necessary apparatus, but particularly with the "know-how," and the average hospital without these advantages should undertake the care of such cases only if nothing better is available. A little of the complexity of the care of serious cases is described. Finally, the philosophy of facing poliomyelitis restrictions leads to the thought that, like most things in life, there may come out of poliomyelitis good as well as bad.

Preparation for Childbirth by Physiotherapy

Helen M. Nicholson, M.C.S.P. C.F.A., and George A. Simpson, M.D., C.M., F.R.C.O.G., F.A.C.S., In THE CANADIAN MEDICAL ASSOCIATION JOURNAL, 67:2:145, August 1952

An approach has been made to the problem of helping civilized woman meet the difficulty of childbirth through her own understanding and cooperation The aims underlying this treatment are three: (1) the reduction of fear; (2) the promotion of relaxation; and (3) the maintenance of good body mechanics.

The reduction of fear is brought about by a discussion of an outline of the physiology and mechanics of pregnancy and labor. The most efficient results in reducing the sensations of pain are obtained through mental and physical relaxation and the patient shoud be attended, during her confinement, by someone conversant with it herself and with the relaxation procedure which she has been taught during her pregnancy. Patients are not told that relaxing will make the process painless, but rather that the contractions will not reach a degree of intensity beyond their tolerance. As a result, those with excellent relaxation are delighted with their success while those less successful are not disappointed. At no time is it suggested that sedation be withheld or that anesthesia in the second stage of labor is not the accepted procedure.

The promotion of relaxation is taught with patients lying on a hard surface, upon which it is easier to obtain a more complete understanding of the relaxed state. Deep breathing is tiring and inhibits full relaxation, if prolonged. A feeling of deep relaxation usually takes quite a considerable time to be appreciated, but, once achieved, practice should be directed at reaching this condition as soon as possible. The next step includes achieving this relaxation under unfavorable conditions, such as a radio playing too loudly on a distasteful program. The body must also be trained to remain relaxed while the mind is actively occupied in listening to a conversation or to a program, so that visits by doctors and nurses during labor will be less likely to spoil the continuity of the relaxation rhythm. It is important also that relaxation may be achieved in positions other than on the back.

The maintenance of correct muscle balance and of individual control of muscle groups of the abdominal, back, and pelvic floor muscles is of paramount importance. A patient has little hope of being able to relax and to cooperate in the later stages of labor if the latter has been neglected. A few simple exercises are all that is required to allow the spine to remain flexible, to allow walking with the least difficulty and to permit the patient to relax and move to or from any position, even at full term. It cannot be overstressed that the greatest hindrance to correct posture and muscle balance during pregnancy is the wearing of a maternity corset, unless secondary symptoms are deemed by the physician to warrant its prescription.

An analysis of the record of one hundred and ten patients treated by this method shows a reduction in the length of labor and hospital stay. The amount of analgesics required by the patients has not been greatly decreased, although by their own reports, some were given sedation prior to their immediate need or wishes. However, it seems to those of the medical and nursing staff with whom the matter has been discussed that patients practicing relaxation are more controlled, quieter, and much more cooperative. This in itself is a definite point in favor of these technics.

Although a short involuntary relaxation and relief may be gained by the patient if she follows the physician's instructions to take short breaths or to scream, usually she is not recipient to the command to relax, having no knowledge of how this may be achieved, unless she has received prior training. Such training is the aim of

this program, in which it is attempted to prepare pregnant women beforehand, to interpret and cooperate with the physician's requests. It is regrettable, therefore, that so many physicians do not avail themselves of this successful program and of the services of physical therapists in administering it.

The Sciatica Problem

Bernard J. Alpers, M.D. In THE CANADIAN MEDICAL ASSOCIATION JOURNAL, 67:2:131, August 1952.

For many years after sciatica was described, attention was concentrated largely on measures designed to relieve it, the assumption being of course that from other standpoints the disorder was thoroughly understood. The history of sciatica gives ample support, if further support were needed, to the realization of the futility of treatment of a symptom. The nature and number of the remedies advocated in treatment defies belief. Among the earliest treatments of sciatica was cautery of the ear, varied at times by cantharides jelly applied to the ear. Counterirritants of many sorts were used early. Drug treatment also was used. Physical therapy was used early and has included massage, heat in various forms, electricity, iontophoresis. Among the various forms of heat which have been tried at one time or another have been warm baths, warm sulphur baths, quartz lamp, ultraviolet lamp, arc lamp and static electricity, moist heat at 45 degrees C. in a thigh bath, and superheated air.

A perusal of the various remedies used in the treatment of sciatica is helpful in emphasis of what has now come to be generally accepted: that there are many causes of sciatica and that what is good for one cause of the symptom is not necessarily good for another.

Looking back over the history of sciatica it is clearly evident that there has been a gradual elimination of cases in which the sciatic pain is unexplained. In our own day it has been made clear that many unaccounted-for cases of sciatica are the result of a root syndrome and that this syndrome is usually associated with a herniated disc. It is not possible to support the contention, however, that all sciatica is the result of herniated disc protrusion, or even that all root syndromes productive of sciatica are associated with this condition. It would seem unnecessary to defend this position were it not for the assertions of enthusiasts who maintain precisely this position.

If failures in diagnosis and negative explorations are to be avoided, it is necessary to correlate all the data in every instance. These include careful history and examination and myelogram correlation. Alpers regards the concept of concealed disc and the belief that most instances of back pain are due to herniated disc as unsupported by the data available at present. Finally, he believes that sciatic neuritis may be more prevalent than is recognized, and that many of the cases which fail to reach hospitals may be examples of this discredited concept.

Recent Advances in Physical Therapy Applied to General Practice

Arthur M. Pruce, M.D. In THE JOURNAL OF THE MEDICAL ASSOCIATION OF GEORGIA, 41:7:305, July 1952.

Recent advances in physical therapy afford a solution to the problem of offering patients adequate office treatment at a reasonable cost during this period of inflated values. Although recent rulings of the Federal Communications Commission has left many with the problem of providing an adequate substitute for short-wave diathermy, there are many physical therapy modalities which will cover the therapeutic needs of the patients.

A simple, inexpensive and effective heating unit, the moist heat pack, can be used in the office and also by the patient at home. Pruce no longer considers the diathermy the basic heat unit for general practice. The moist heat pack is particularly effective in muscle spasm associated with acute lumbosacral sprains. The painful lumbosacral segment is protected against motion by lumbar muscle spasm. Office diathermy releases spasm leaving the part unprotected. Recurrence of spasm is frequently evident by the time the patient reaches his home. A more reasonable procedure would be to institute heat treatment at home. Bed rest with frequent applications of the pack will gradually restore the muscles in spasm to normal length.

There are specialized situations for which the moist heat pack, despite its adaptability, falls short in its effectiveness. The paraffin bath is the treatment of choice for chronic arthritic hands and feet, and it is essentially a home procedure.

Qualified physical therapists are not available to meet all the demands for such services. Massage applied by such trained technicians has a sedative and relaxing effect and serves as an ideal preparation for therapeutic exercise. Recently the Council on Physical Medicine and Rehabilitation of the American Medical Association has accepted a portable electric muscle stimulator (Medcolator) that can reproduce certain effects of manual massage and passive exercise. This device will enable the general practitioner to administer such therapy at the bedside, or in the office with routine office help. Pruce has found the device useful in stimulating astrophic muscles at joints that have been damaged by trauma or arthritis, and also in eliciting painless contractions in flaccid paralysis. While this unit has specific properties, the value of the manual massage and exercise remains undiminished.

Certain Problems in Fracture Treatment

H. Earle Conwell, M. D. In THE JOURNAL OF THE MEDICAL ASSOCIATION OF GEORGIA, 41:8:343, August 1952.

Physical therapy is helpful in all fractures, not necessarily and entirely machine therapy, such as diathermy, but the use of the simple physical resources such as hot water and ordinary heat and lights. Too prolonged fixation is a very disabling procedure. It is not conducive to early function. Early active motion used by the patient is one of the most important procedures in accomplishing good functional results. Hot and cold contrast baths are to be used when sufficient callus formation has taken place to allow the temporary removal of any fixation from the involved part. Massage and other

forms of physical therapy when accessible are of great help. All of these procedures should be under the direct supervision of the physician treating the case, and when possible in cooperation with a capable physical therapist.

One of the most important physical agents to use in fractures is exercise. The muscles of the body are expected to work together in the coordinative movements which we use in our daily ordinary work and they will work together longer when there is a purposeful nature in the exercise. Therefore, curative occupational therapy is probably the best exercise and is of the greatest value. Even without expert directions the surgeon can with a little ingenuity use occupational therapy. One's ability as a surgeon in treating fractures is not determined entirely by the method or methods of treatment which he uses but by the functional results obtained.

Physical Medicine and Rehabilitation in the Management of Arthritis

Herman L. Rudolph, M.D. In JOURNAL OF THE NATIONAL MEDICAL ASSOCIATION, 44:4:252, July 1952.

The proper management of arthritis is directed to the relief of pain, swelling, and stiffness. First and foremost, however, is the necessity for attention to the prevention and correction of crippling deformity and disability. The mainstay in physical therapy is the judicious use of heat, massage, and graduated exercise.

A most useful and very simple method for the application of dry heat is the ubiquitous electric heating pad; its constant temperature and ease with which a joint can be wrapped make it superior to the hot water bottle.

Diathermy has proved to be an effective means of securing deep heating of arthritic joints preferably with the induction cable as a wrap around with three turns of cable, or as a pancake coil. Microwave diathermy has become popular recently because of its ease of application and especially its noninterference with broadcasts, it seems to serve well where point effect is desired such as at the shoulder but does not have the universality of application of the induction cable short-wave diathermy.

The use of moist heat not infrequently affords great comfort for arthritic patients many of whom will voluntarily state that a hot compress is more effective in relieving pain than dry heat.

Massage following the application of heat affords comfort to most arthritics when applied properly. It is regrettably true that very few physicians have taken the time to learn the simple procedure, yet permit its use in the home by relatives without supervision. The physician should be as meticulous about demonstrating massage for an arthritic as he is, for example, about demonstrating the sterilization of a syringe and needle at home for a diabetic. A prescription for massage by a qualified physical therapist is Utopian, but until such time as the supply of therapists will meet the demand, home procedures become the responsibility of the physician who should take the little time it requires to learn the technic of massage for a satisfactory demonstration to patients and their families. There are many rules, indications, and contraindications for the application of massage; above all, its use should be limited to the muscle mass, never over an acutely painful joint.

A carefully outlined exercise program is unquestionably the most important factor in the prevention and correction of crippling deformitory. Activation of muscles will prevent and may correct disturbances in body mechanics.

Convalescence and Rehabilitation

Murray B. Ferderber, M.D. In THE PENNSYLVANIA MEDICAL JOURNAL, 55:7:669, July 1952.

This report is intended to assist those physicians who live in areas without hospital services or departments of physical medicine. It is a compilation of simple but practical measures devised by surgeons and internists who have used these ideas to hasten the period of convalescence to a successful conclusion.

Simple bed exercises such as quadriceps settings will help to maintain strength in the largest muscle of the body. Ferderber describes a simple device for increasing strength and range of the thigh muscles which can be made from inexpensive materials—clothesline and belting.

Despite any advertised claims, heat is used for one purpose only—the production of hyperemia. Ferderber discusses the use of heat in many injuries and conditions. Heat is especially useful in the treatment of hand injuries; washing dishes and wringing cloths in hot water will supply the moist heat and exercise so necessary for resolution of such disability. He also discusses the care of patients confined to bed for long periods of time. Disuse atrophy can be lessened by bed exercises which in turn will reduce demineralization of bones in long-standing cases.

Ferderber cautions that the limbmaker possesses neither the professional background nor the training to teach an amputee gait-training. A qualified physical therapist with amputee training can and will prevent walking which is undesirable and does not approximate the normal gait.

Rehabilitation of the Cardiac: A Report on the Findings Made During a Three-Year Observation Period at the Altro Workshops, Inc.

Abraham Jezer, MD. In AMERICAN JOURNAL OF PHYSICAL MEDICINE, 31:3:139, June 1952.

The rehabilitation in the Altro Workshop project for cardiacs has been conducted for a three-year period. Admitted to the Workshop were those patients whose cardiac classification was 2C and 3C, totalling 30 who had hypertensive arteriosclerotic heart disease, and 12 who had rheumatic or congenital heart disease. The result of this study seems to warrant the following tentative conclusions:

(1) For the rheumatic group, the findings indicate that the rheumatic recently recovered from subacute bacterial endocarditis or from active rheumatic carditis and those showing chronic rheumatic heart disease without congestive heart failure may carry on full-time employment at a sedentary occupation. Those showing a regu-

lar rhythm and heart failure or permanent auricular fibrillation require a permanently sheltered workshop.

(2) The hypertensive and arteriosclerotic patients who show no evidence of heart failure may continue at work at their normal occupation. Those showing mild heart failure which can be controlled by mercurials, digitalis, and a salt-poor regimen may also continue working in an accustomed job, providing it is not strenuous. A modified rest regimen should be followed during week-ends.

(3) The hypertensive and arteriosclerotic having angina controlled by nitroglycerine may continue to work at an accustomed job. Retraining at a less exacting job for these is socially impractical, unless the accustomed job is too strenuous. Those showing both angina and heart failure are usually quite disabled and should be permitted to work in a permanently sheltered workshop.

(4) For the elderly cardiac who cannot continue being employed full-time at an accustomed job, a permanently sheltered workshop is urgently required.

(5) The major difficulty in the restoration to work of many cardiac cripples is created by the frightening approach to heart disease shown by some attending physicians. Such cardiacs are more disabled by emotional instability caused by the impact of the diagnosis of heart disease than by the effects of heart disease itself. For these, cardiac rehabilitation rather than retraining or a permanently sheltered workshop is required. Indoctrination of physicians in the psychological management of their cardiac patients is essential for progress in this field.

Rehabilitation of Peripheral Nerve Injuries

John H. Aldes, MD., Arthur C. Bockstahler, and Lionel Lieberman. In ANNALS OF WESTERN MEDICINE AND SURGERY, 6:7:418, July 1952.

Rehabilitation of peripheral nerve injuries begins at the time of admission for primary treatment. The length of delay in starting rehabilitation is in direct proportion to complications which arise. Contractures, joint stiffness, and resulting deformities are greatly minimized when treatment is begun early.

The rehabilitation team, which includes the patient, must have a thorough knowledge of the program, and the expected goal of the patient's vocational and social activity.

The scope of the treatment is limited by several factors; among these is the nature of the lesion in the nerve which has a fundamental influence upon the degree of recovery.

Prevention of contractures of muscles and soft tissues and secondary changes in joints must be a goal in the rehabilitation program.

The final success of treatment is in the hands of the patient, who must realize that without regular daily use of the affected limb in his vocational and social activity, best functional results cannot be obtained.

The Rehabilitation of the Hemiplegic

Herman J. Bearzy, M.D. In THE OHIO STATE MEDICAL JOURNAL, 48:5:409, May 1952.

Since not all hemiplegics can be aided by rehabilitation, it is necessary first of all to exclude those cases in which the pathological processes will prohibit many of the physical activities that are required in a rehabilitation program. Careful evaluation must be made of the physical and mental status of the patient with hemiplegia. The physiatrist is consulted to determine the strength of both the affected and normal muscles; to check the range of motion of the involved joints, and to institute early procedures for the prevention or correction of contractures or deformities. The physiatrist also should perform the activities of daily living test to determine the amount of functional disability present.

After careful evaluation of the patient has been accomplished, the internist, neurosurgeon and physiatrist plan for the immediate and long term care of the patient. Treatment may be considered in three phases: (1) medical care of the apoplectic stroke during the immediate onset; (2) medical management of the resultant hemiplegia, and (3) those physical activities that aim to rehabilitate the individual to a life of usefulness and self independence.

Physical therapy in the first stage consists of heat and massage to alleviate pain and spasticity, and to prepare the extremities for passive stretching motions. Electrotherapy also has been of some value as an aid in muscle re-education and in helping to overcome certain fixed deformities which most hemiplegics tend to develop.

The second phase of the treatment of the apoplectic stroke consists of those activities directed towards the residual hemiplegia to improve neuromuscular coordination, muscle function and muscle strength.

Bedside rehabilitation activities, after the acute phase of the illness is over, should consist of a continuation of passive exercise and pulley therapy.

The third and final stage of the rehabilitation program attempts to improve functional performance by retraining the patient in ambulation, reestablishing function and coordination in the affected upper extremity, improving speech performance, and establishing a good home program for the patient when he is finally discharged from the hospital or clinic.

Advanced ambulation training may be carried on in the rehabilitation department or in the patient's home. Active resistive or progressive resistive exercises are given to strengthen all affected muscle groups preparatory to full ambulation. Posture exercises are given to correct any postural defects that may be present. The patient then progresses to walking between parallel bars, and finally with crutches or canes.

The affected fingers and hand of the hemiplegic are the last to recover any useful function. Since most cases fail to recover full functional use of the involved hand, it is important that one-handed skills with the unaffected hand be started and continued until the patient has regained adequate function in the affected hand to perform the activities essential to daily living. The rehabilitation of the spastic arm should begin with a series of exercises directed towards increasing and improving motion first in the shoulder, then in the upper arm, forearm, and hand. Reeducation exercises, similar to those used in poliomyelitis, are

required to retrain these muscles for normal functional movement. Once the normal pattern of motion has been reestablished, muscle strengthening and coordination exercises can be prescribed.

Edema and Lymphedema of the Lower Extremities

Eugene L. Lowenberg, M.D., In VIRGINIA MEDICAL MONTHLY, 79:7: 351, July 1952.

There are many "tricks of the trade" in the treatment of edema and lymphedema of the lower extremities. Elevation is of great help, and true elevation of lymphedematous leg really means elevating the foot as high as the neck because after all the lymph has to get back into the venous system through the thoracic duct at the neck level. For bed rest, there must be shock blocks under the foot of the bed or a kitchen chair, not simply pillows under the knees. Twelve inches of elevation is average but greater heights may be required. For bedside sitting the leg must be raised above the hip level.

Massage is an excellent method of increasing lymph flow and is entirely safe in the noninflammatory group. Patients must be reminded also that the motor of the lymph circulation is motion and that they must move their feet up and down when they stand still, and walk energetically. Another good form of leg exercise consists of bicycling exercises with the legs entirely overhead.

The Treatment of Hyperhidrosis of Hands and Feet with Constant Current

H. D. Bouman, M.D., and Emma M. Grunewald Lentzer, M.S. In AMERICAN JOURNAL OF PHYSICAL MEDICINE, 31:3:158, June 1952.

This is a description of a simple treatment for hyperhidrosis of hands and feet. One hundred and thirteen patients have been treated with an application of constant current. In one hundred and three of these, drying occurred in five to thirteen treatments with an after-effect lasting up to three months. In six additional patients drying was obtained with aluminum ion transfer. In four patients the treatment resulted in unsatisfactory or no improvement. The effect appears to be due to a direct inhibitory effect on the sweat glands.

CORRECTION

Through an error the Medcolator advertisement in our November issue appeared as Medico Products Company.

We were in error for the name of the advertiser of the MEDCOLATOR is Medco Products Company. The corrected name appears in their advertisement on the first page of this issue.

Book Reviews . . . . .

Reaction to Injury. *By Wiley D. Forbus, M.D., Professor of Pathology, Duke University; Pathologist to the Duke Hospital. (Volume I, $9.00), Volume II, Cloth binding; price, $20.00. Pp.* 1,110; *illus.* 836. *Williams and Wilkins Company, Baltimore,* 1952.

A magnificent textbook of pathology has been completed with the publication of Volume II of *Reaction To Injury*. Dr. Forbus, who is Professor of Pathology at Duke University and Pathologist to Duke Hospital, first published Volume I of this book in 1943. In comparing this book with the conventional type of pathology textbook, we find a great difference in method of presenting the material.

Whereas Volume I considers, first, an orientation in the study of diseases and, second, pathology arising from resistive action of the body, Volume II considers those disease entities arising from the submissive and the adaptive reactions of the body to injury. Thus, diseases are divided into three groups according to three basic reaction types: the resistive (Vol. I), the submissive (Vol. II), and the adaptive (Vol. II). The book does not limit itself to the discussion of pure pathology but presents a full picture of the diseases. Much space is given to the normal physiology of the organ being considered and, the pathological changes are compared to the normal. The associated clinical findings are also included. The result is a thorough discussion of disease processes.

Volume II is a large book of 1,110 pages with 836 excellent illustrations (54 of which are in color). The book is necessarily massive because of the inclusion of the normal physiology and the clinical symptoms and signs as well as the pathological aspects of disease. The blending together of the above results in reading that holds one's interest. The composition is easy to read, and the material is simply presented. In addition to serving as a text for medical students and physicians as it was originally intended, it would serve as an excellent reference for physical therapists.

Anatomy in Surgery. *By Philip Thorek, M.D., F.A.C.S., F.I.C.S., Assistant Clinical Professor of Surgery, University of Illinois College of Medicine. Hard binding; price,* $22.50. *Pp.* 970; *illus.* 720. *J. B. Lippincott Company, Philadelphia,* 1951.

This detailed and well-written text is obviously the work of an author who has spent considerable time analyzing and teaching his subject. As the title indicates, the book was written with the surgeon and student of surgery in mind. However, we feel that there are many features which make it an excellent reference text for the physical therapist, the instructors in physical therapy schools, and the student.

The treatment given to both

anatomical and surgical details is such as to give a clear and concise understanding of the extent of surgical procedures and will thus permit a more intelligent handling of many patients. This aspect of the text is well reinforced by the excellent illustrations; since all were done by one artist, specifically for this volume, they possess an unusual clarity and appropriateness to the discussions. Particular comment should be made concerning those illustrations in the chapters relative to the extremities. Here one finds a useful series of pictures which combine deep and surface anatomy of particular value to anyone working with cases of peripheral nerve injuries, orthopedics, and amputations.

While there is understandably a certain amount of material of little direct interest to the physical therapist, it is felt that this book will make an excellent addition as a reference text.

Physical Medicine in General Practice. *By 22 authors: edited by William Bierman, M.D., Attending Physician, Department of Physical Medicine, Mt. Sinai Hospital, New York City; Assistant Clinical Professor of Medicine, Columbia University; and Sidney Licht, M.D., Lecturer, Physical Medicine, Tufts College Medical School and Boston University School of Medicine. Cloth. Price,* $12.50. *Pp.* 798; *illus.* 234. *Paul B. Hoeber, Inc.,* 1952.

Inasmuch as the scope of physical medicine is very extensive, the application of this book therefore is in the direction of multiple authors presenting their varied and valuable experiences in handling this enormous sphere of work.

The book is divided into two parts. The first part deals with the methods, and the second part with the clinical application. It is the reviewer's opinion that part two is the stronger; however, it is likewise the feeling that part one should be of inestimable value in the teaching program for occupational therapists and physical therapists. This does not mean that this is of no value to practicing physicians in the specialty.

There may be other physicians in the field who will be at clinical variance with the contents of part two of this book. Such variance is to be expected when a subject as large as physical medicine is handled by multiple contributors.

The general content dealing with the indications as well as contraindications of physical medicine methods in general practice should make this book a usable one for all classes of physicians.

Ultraviolet Radiation *by Lewis R. Koller, Ph.D., Research Associate, General Electric Research Laboratory, Schenectady, New York. First Edition. Cloth. Price,* $6.50. Pp. 270; *illus.* 148 *and* 77 *tables. John Wiley & Sons, Inc., New York and Chapman & Hall, Ltd., London,* 1952.

The author has selected from the vast field of information available in the scientific and technical literature relating to ultraviolet radiation what he considers data most useful for the nonspecialist in radiation—those general physicists and specialists in other fields who make use of the ultraviolet portion of the spectrum in their work. The book has been prepared in response to many inquiries from physicists, biologists, medical men, chemists, engineers, and laymen over a period of years.

In the introductory chapter the basic physics of ultraviolet radiation energy is covered and includes history, sources, units of measurement, definitions, response of human eye, penetration, and kinds of spectra. Various electrical arcs and their characteistics, incandescent sources of radiation, solar radiation and the conditions affecting its utilization are considered in the three following chapters. The characteristics of transmission, transmittance, and reflection and the materials best utilized to control these factors make up the material in chapters five and six.

The chapter on applications and effects of ultraviolet is limited to applications and effects which have interested the author most and in which certain basic principles are involved. It is of particular interest to the physical therapist who is utilizing this form of energy in the care of patients. The author points out that many therapeutic applications of ultraviolet radiation are still subject to considerable controversy, that some beneficial results have a sound physical basis, and that others may be partly based on psychological factors. Where there is agreement as to results, there still are questions as to technic of application, and in only a few areas is there a reasonably satisfactory quantitative basis for evaluating biological effects—areas such as, the production of erythema and pigmentation, the prevention and cure of rickets, the production of vitamin D and the destructive effects on bacteria, viruses, and other organisms. These and the practical applications which can be made are discussed in some detail, as well as the phenomenon of fluroescence and its use as a diagnostic and analytic agent.

A final chapter on detectors of ultraviolet radiation considers the problems of various physical, chemical, and biological devices which are used for accurate measurement and will not be of much immediate practical value to the physical therapist.

The illustrations and the many graphs and tabulations of data are helpful in supplementing the text material and there are adequate references of source material at the end of each chapter. An index completes the book.

This book should be an excellent source book of information for the physical therapist who wishes to enlarge his background of knowledge in the field of radiant energy, but would not be recommended to the beginning student except as supplementary to the basic course in radiation under careful guidance of the instructor.

Hemifacial Spasm. *By Robert Wartenberg, M.D., Clinical Professor of Neurology, University of California. Cloth binding; price,* $4.00. *Pp.* 96; *illus.* 27. *Oxford University Press, New York City,* 1952.

Although many neurologists may not be in complete accord with the conclusions reached by Dr. Wartenberg in this monograph, all will agree the conclusions are logically reached after careful, first-hand observation.

The book begins with a review

of the observations others have made of cryptogenic hemifacial spasm,and follows with the author's own listing of the clinical features of such spasm. The clinical picture is shown to readers with numerous, full-page photographs. Then the author takes present theories of the origin of hemifacial spasm and shows that they do not entirely explain the clinical picture. Cryptogenic hemifacial spasm is compared with postparalytic facial spasm and spastic syndrome in the lower extremities in advanced cases of compression of the spinal cord, and the conditions are discussed as release phenomena. After this detailed preliminary the author then gives his own hypothesis as to the cause of hemifacial spasm. The whole work is built up to this conclusion, which the author hopes may serve as a working hypothesis for clearer understanding to the clinical facts.

The physical therapist will seldom be called on to treat a case of hemifacial spasm because there is no treatment known which will benefit all such patients. However, all physical therapists who read the book will learn much not only about hemifacial spasm, but also about hemifacial paralysis. This work should serve as a model of careful research on one small clinical entity, and other similar works should be encouraged.

The Knee and Related Structures. *By Philip Lewin, M.D., F.A.C.S., F.I.C.S. Professor and Chairman of the Department of Bone and Joint Surgery, Northwestern University Medical School; Attending Orthopedic Surgeon, Cook County Hospital; Professor of Orthopedic Surgery, Cook County Graduate School of Medicine, Chicago. Cloth Binding; price,* $16.00. *Pp.* 914; *illus.* 333 *and two plates in color. Lea & Febiger, Philadelphia, Pa.,* 1952.

Dr. Lewin is well qualified to write a book on disorders of the knee. He has been active for forty years in civil and military practice and in teaching. During this time he has been abstract editor and has reviewed many thousands of orthopedic articles.

The book was written for persons interested in causes, diagnosis, prevention and treatment of any disorder involving the knee joint. It is a reference book in which the material has been correlated and evaluated.

The author's purpose was to simplify the vast literature which has grown up about the disorders of the knee and also to clarify some of the discussions which have left confusion in the minds of some of the younger surgeons.

There is a discussion of the anatomy, physiology and body mechanics of the knee joint. There are several chapters discussing the methods of arriving at a diagnosis. Both nonoperative as well as operative treatment are described. Modern methods of rehabilitation are emphasized.

Injuries of the knee as well as diseases of the knee are included. There is a chapter on neoplastic lesions that occur in the knee.

There are over three hundred good illustrations. The bibliography is long and inclusive.

This book is a compilation of the literature with some expression of the author's preference in the methods of treatment.

The author has included an appendix with a series of interesting quotations.

The reviews here published have been prepared by competent authorities and do not represent the opinions of the American Physical Therapy Association.

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